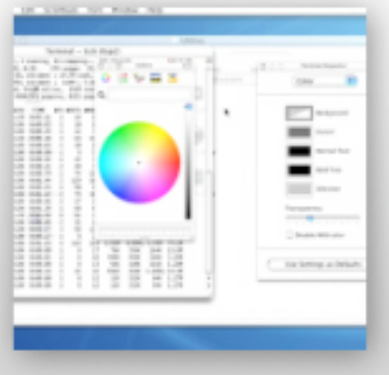
# Mac OS X State of the Union

## Session 000



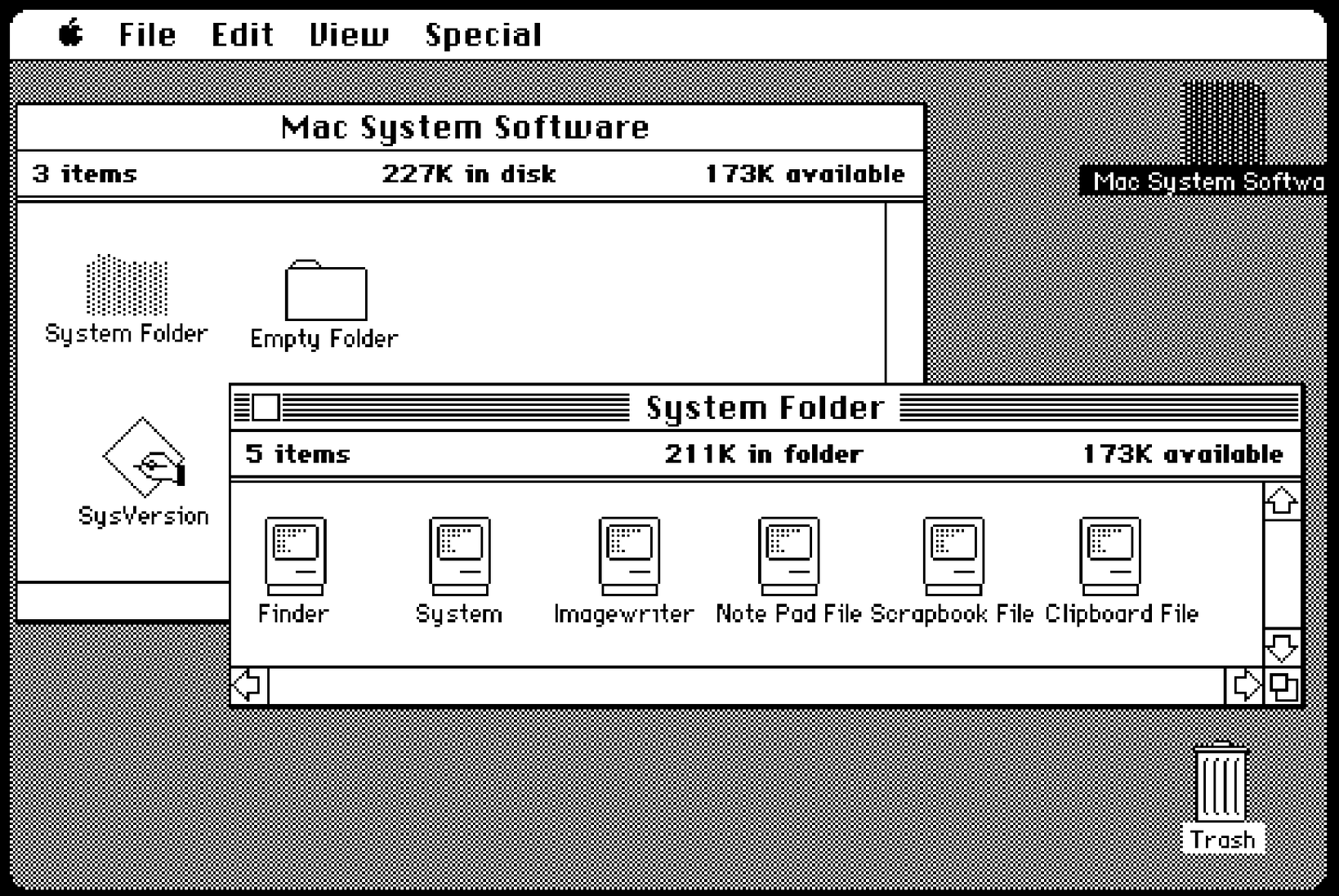
# Mac OS X State of the Union


**Bertrand Serlet**

*Vice President*

*Platform Technologies*

# 1984


File Edit View Special
Mac System Software
3 items 227K in disk 173K available
Mac System Softwa
System Folder
Empty Folder
SysVersion
System Folder
5 items 211K in folder 173K available
Finder
System
Imagewriter
Note Pad File
Scrapbook File
Clipboard File
Trash

# 2001

Finder File Edit View Go Window Help 11:23 AM

Documents

Back View Computer Home Favorites Applications My Project

Homework Ladybug Star Fish

MP3 Jazz

Read me

QuickTime Player

00:12:23

untitled document

Save as: Flowers

Where: Documents

Save Image Preview

Cancel Save

TextEdit

# 2002

# Jaguar

UNIX
BASED

# Panther

# What's in Store?

# Apple Music Store

## Inside

New Releases

Staff Favorites

Up & Coming

Just Added

## Artists

The Doors

Coldplay

Jack Johnson

Fleetwood Mac

The Ataris

U2

Bob Dylan

Pink

Los Lobos

Sheryl Crow

New Releases — More

Linda Ronstadt

Los Lobos

Closer To God

New Releases — More

Keb' Mo'

Monsoon

Psychedelic Furs

New Releases — More

In Absentia

Little Feat

T-Bone Walker

## Top Songs

1. Like a Stone
   AudioSlave
2. Short Skirt
   Cake
3. Criminal
   Fiona Apple
4. Intuition
   Jewel
5. Cochise
   AudioSlave
6. Whip It
   Devo
7. Clocks
   Cold Play
8. Ze Panther
   Pink

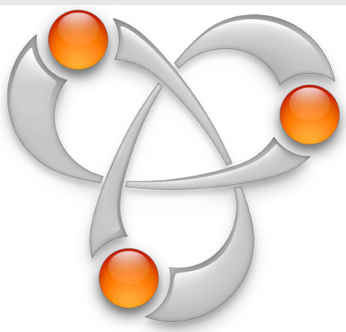
## Top Albums

1. Birds of Pray
   Live
2. Let Go
   Avril Lavigne
3. Sea Change
   Beck
4. Cranberries
   The Cranberries

# User Features

# Developer Features

New Releases More



New Releases More

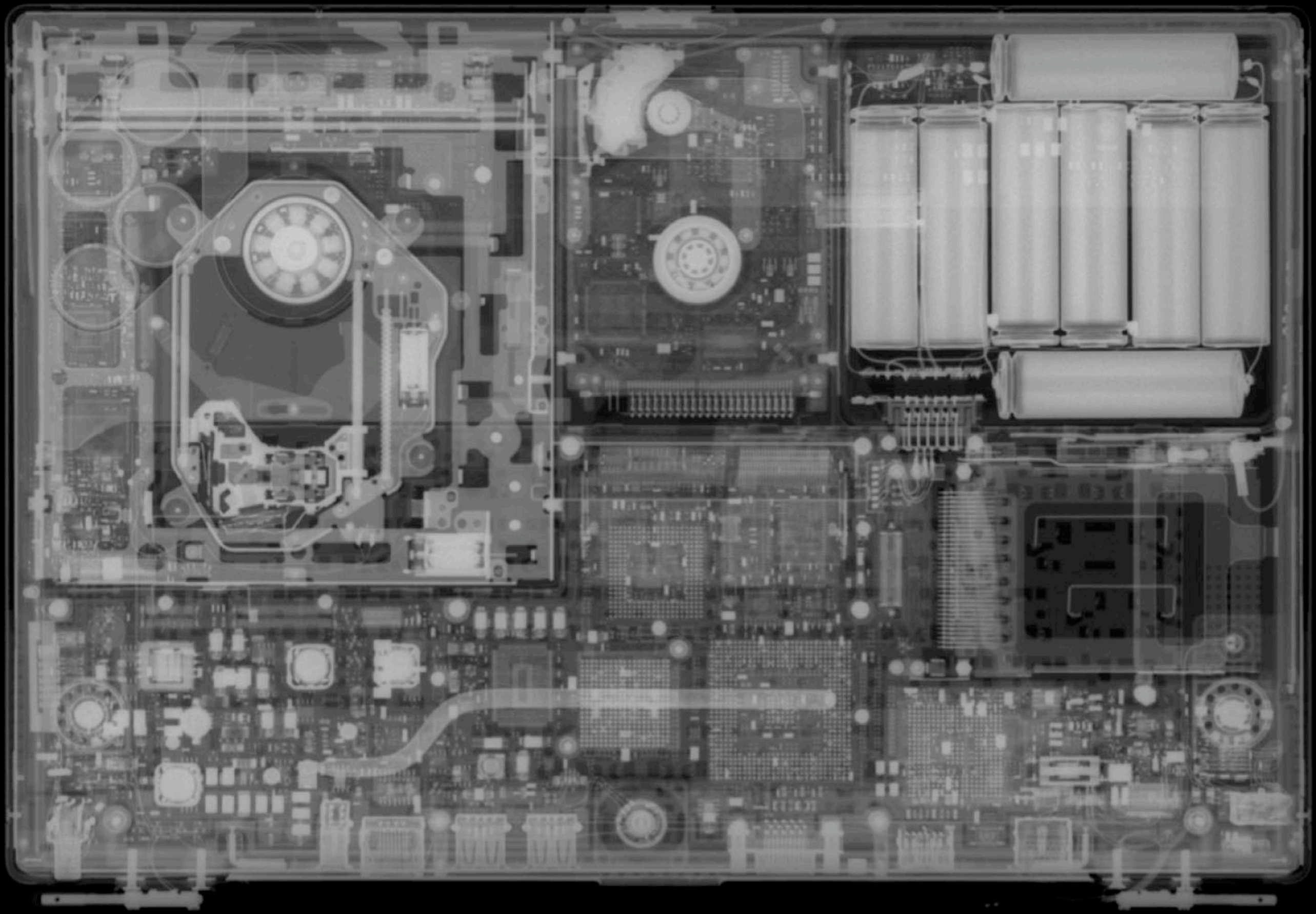
New Releases More

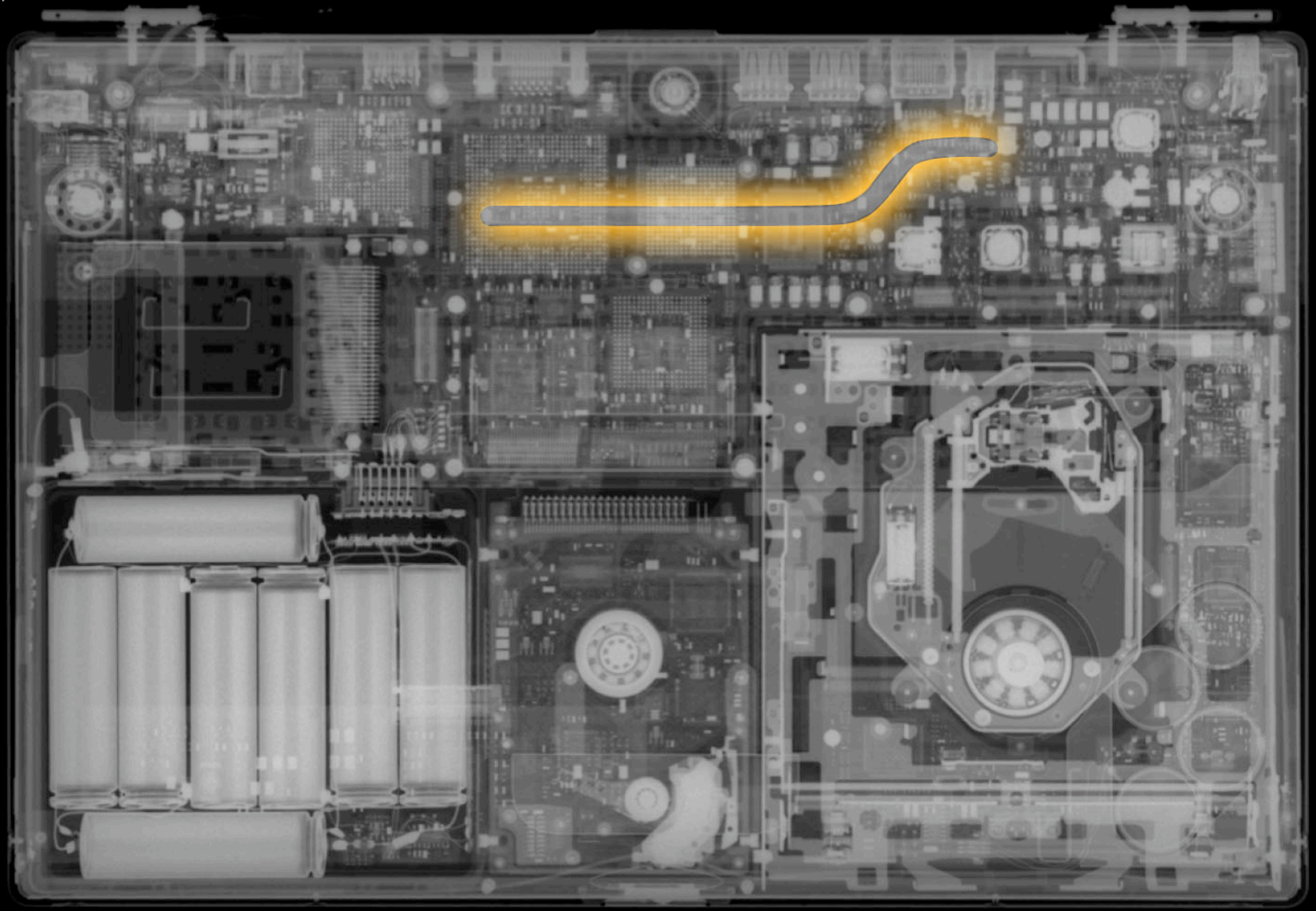
# Mobility

New Releases More

New Releases More

New Releases More

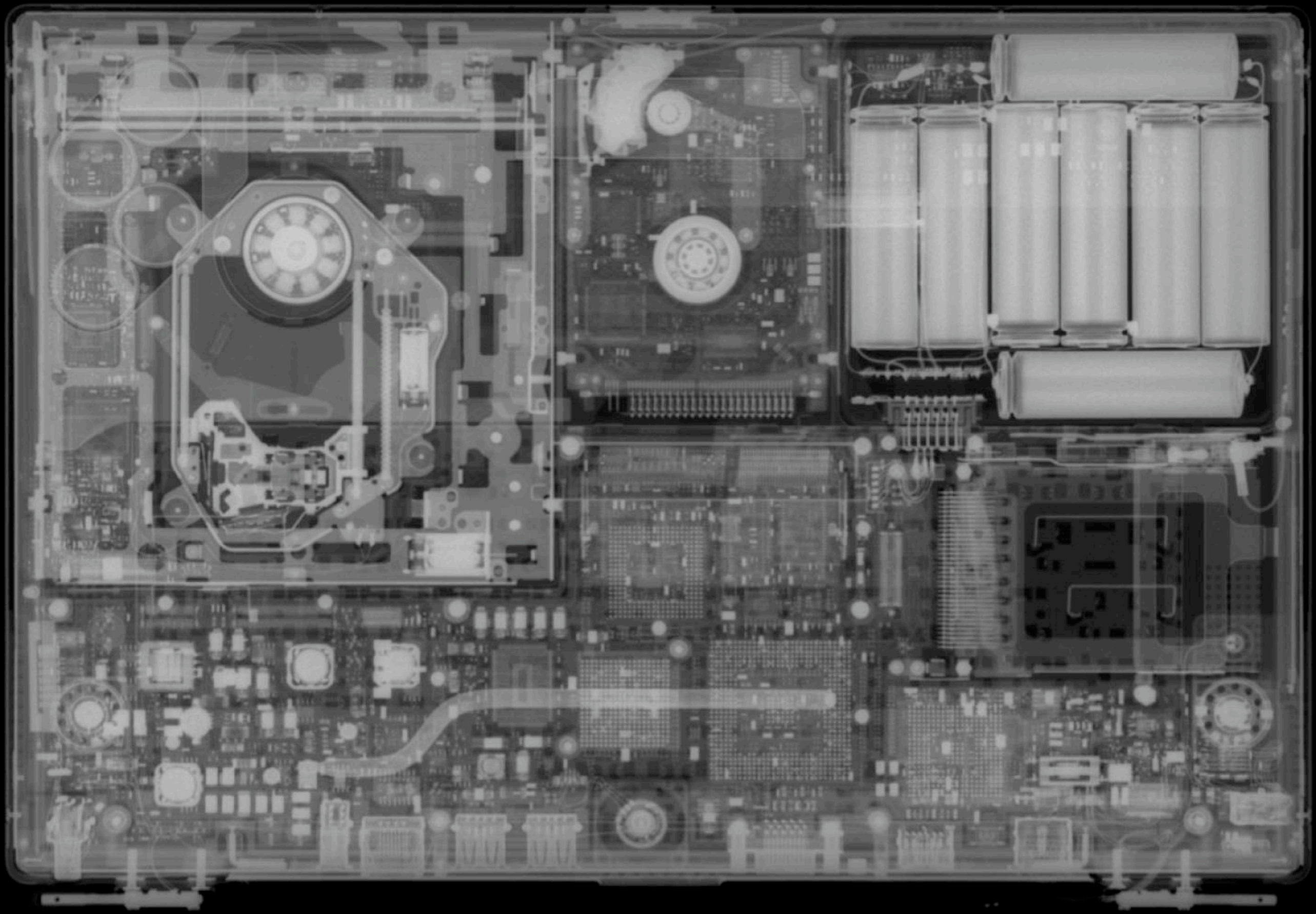


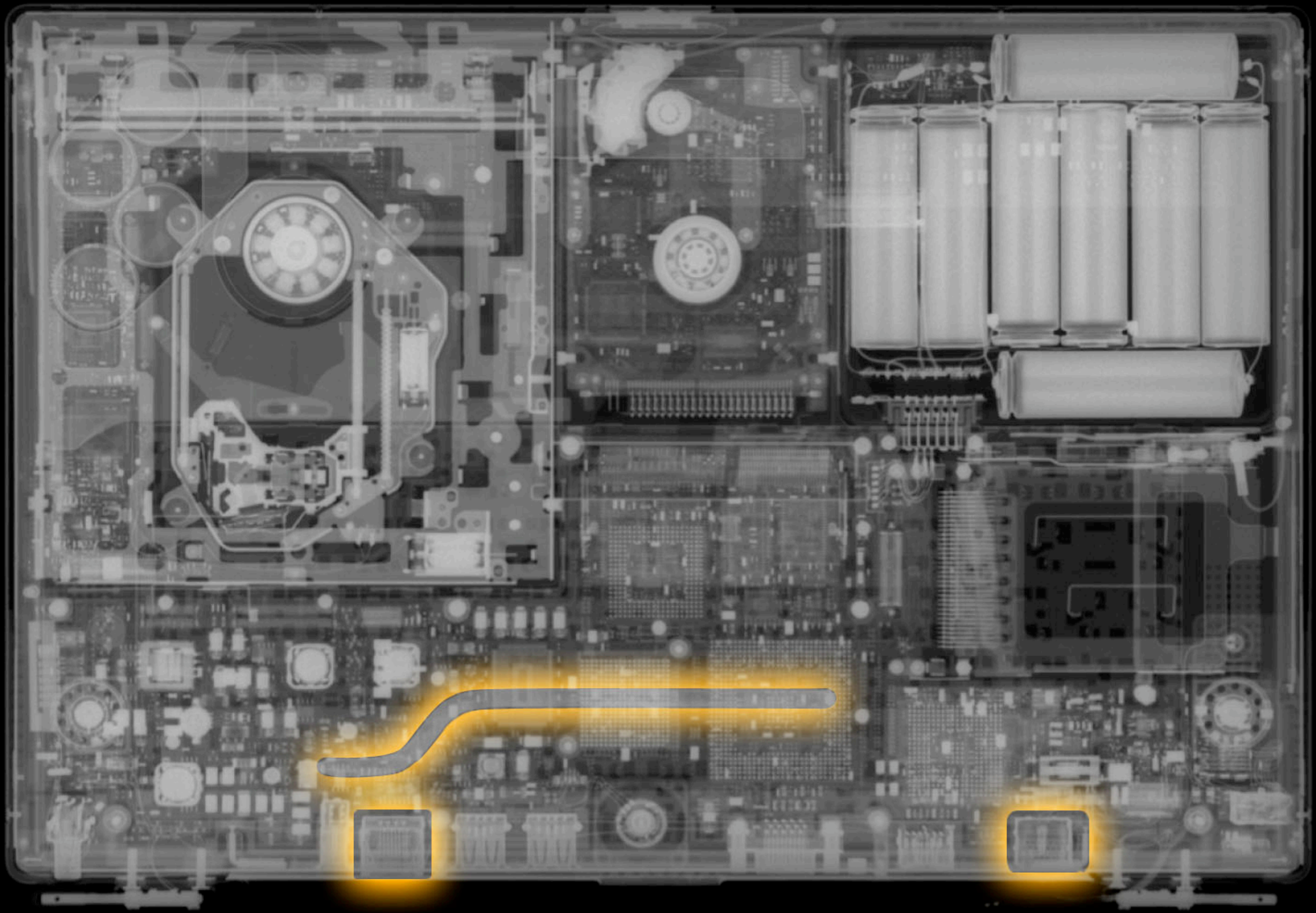


# Wireless

# Wireless

- 802.11b (Airport)
  - 11 Mb
- 802.11g (Airport Extreme)
  - 50 Mb
- 802.1x authentication
  - Not just wireless





# Networking

- Networking is hard!
- System service

# New in Panther

- IPv6
- IPsec
- VPN
- 802.1x
- **Advanced reachability APIs**

# CFNetwork

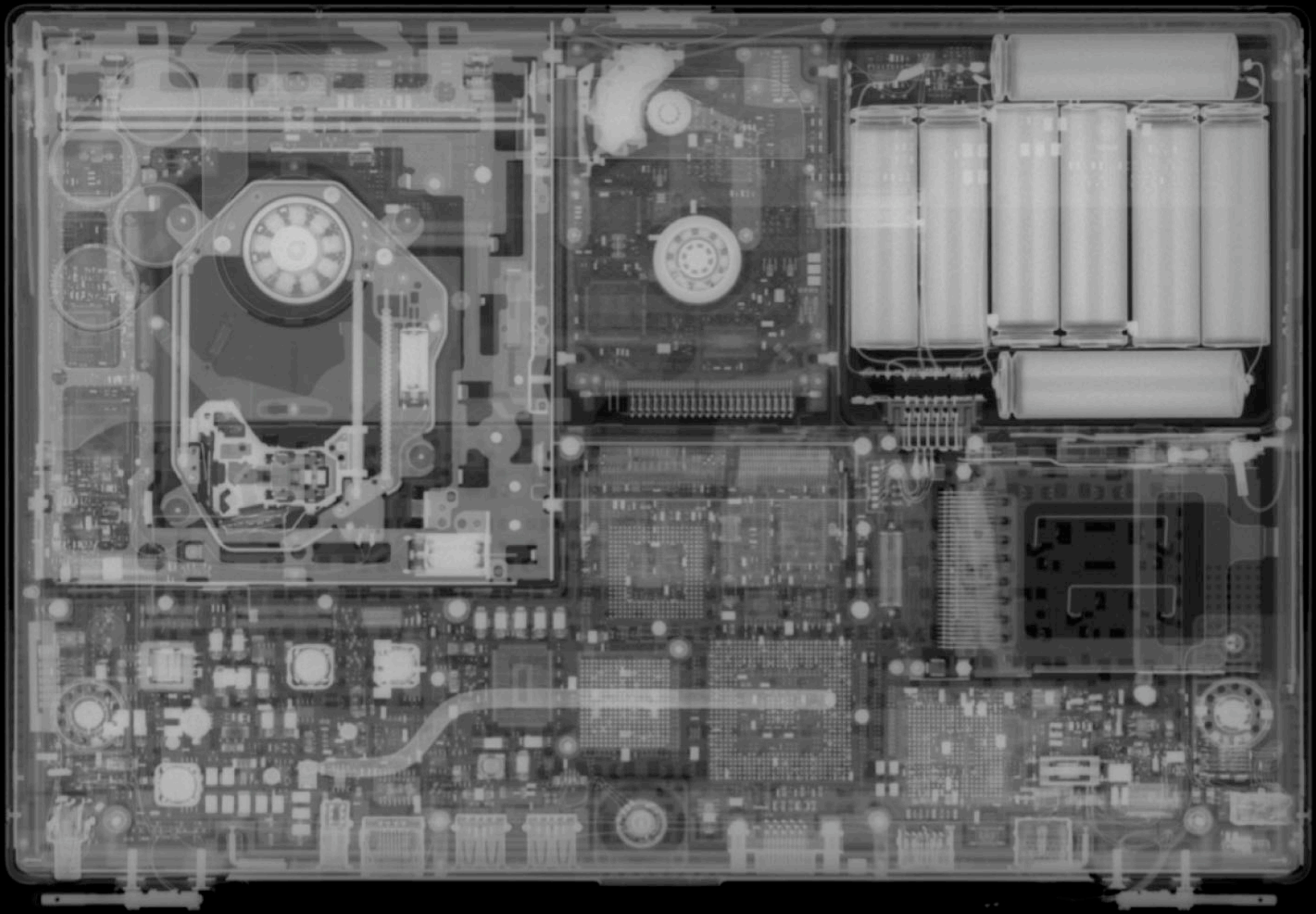
- Abstractions for network protocols
  - Sockets, DNS
  - HTTP, HTTPS, FTP
- CoreFoundation style
  - Data types, asynchronous
- New in Panther
  - CFHost: async DNS lookup, reachability…

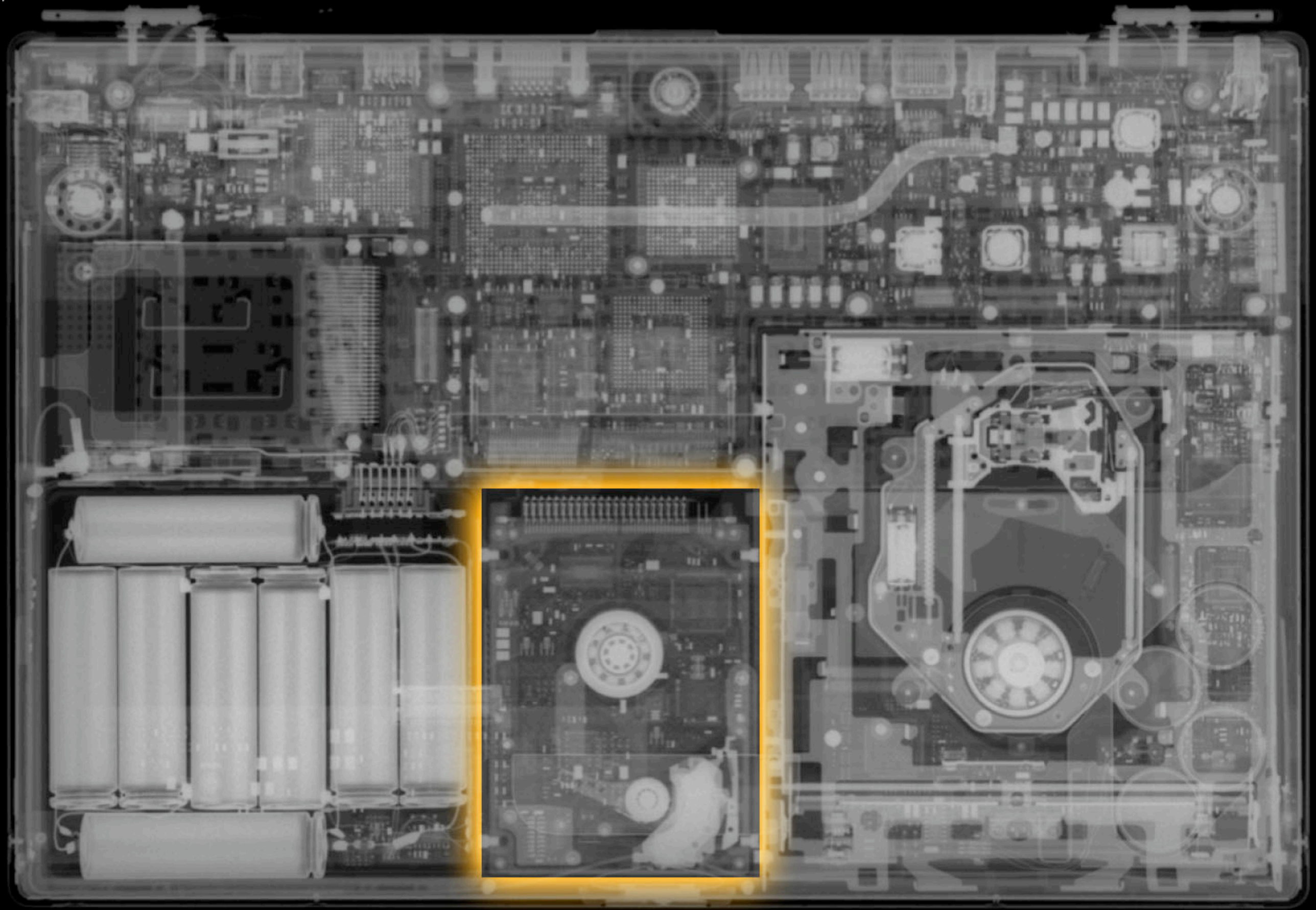
# CFNetwork

## It’s easier

## It’s fast

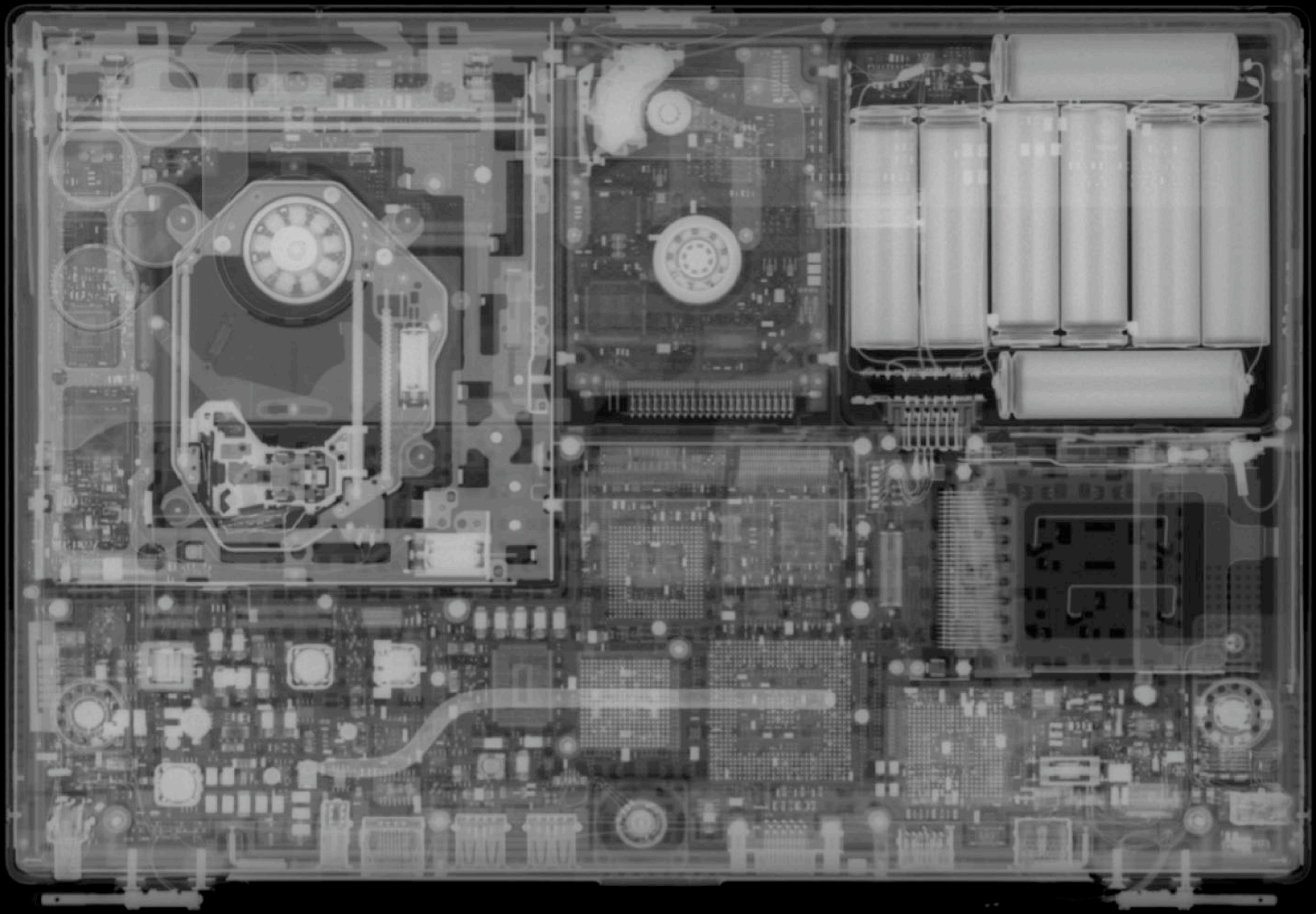
# CFNetwork

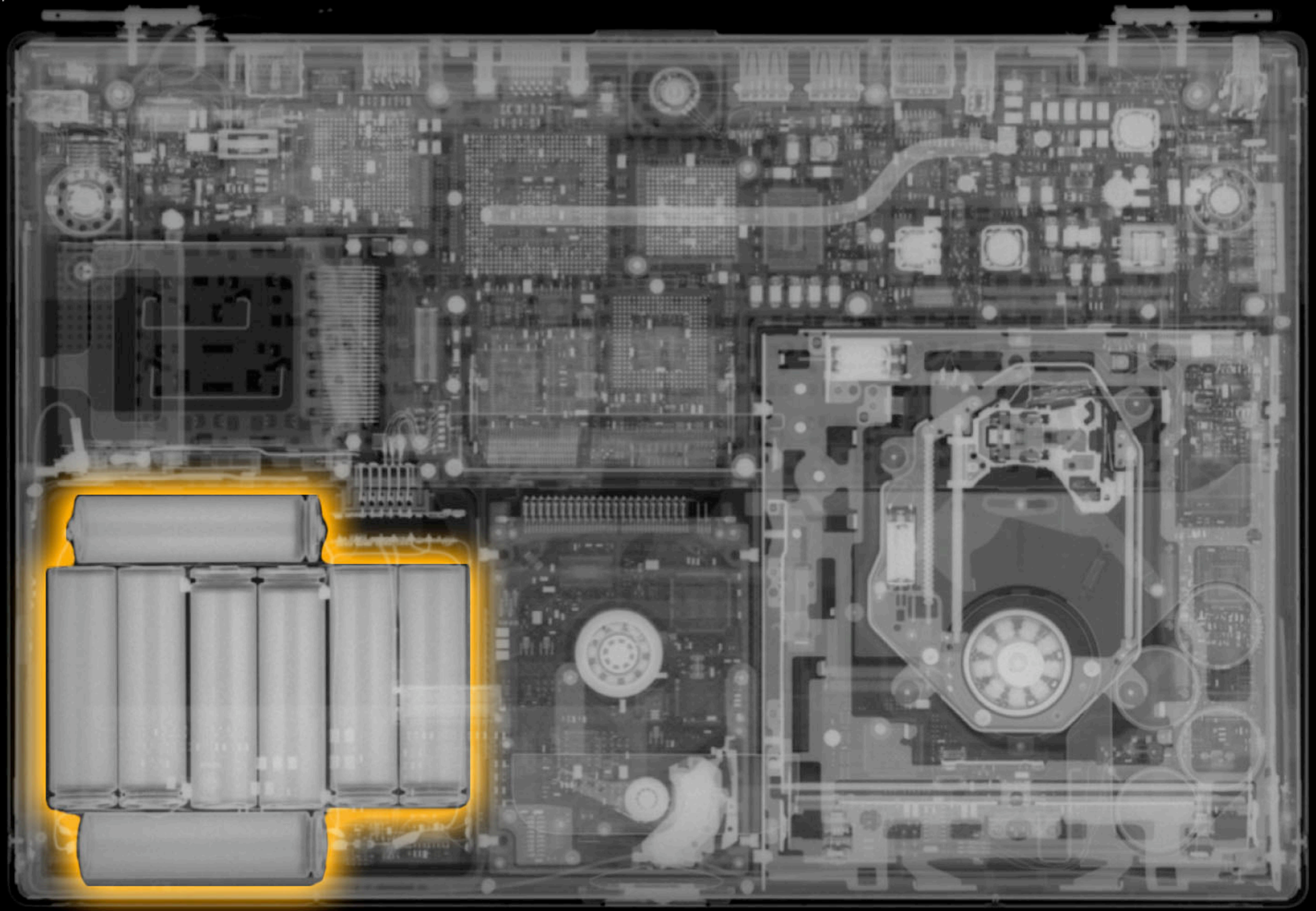


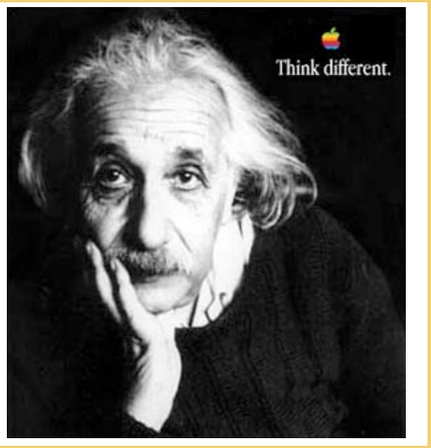


# Storage

- Problem #1: Disconnection
  - AFP mobility-aware
  - NFS mobility-aware
- Problem #2: Data Syncing
  - Addresses; Calendar
  - Bookmarks
  - File Syncing: iDisk

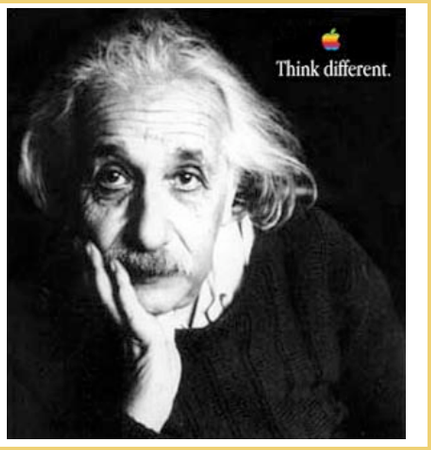






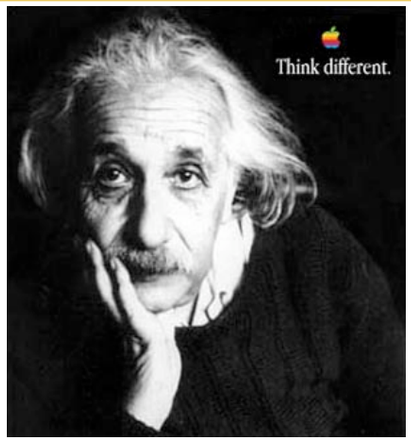

# Physics

## Battery = Energy




# Physics

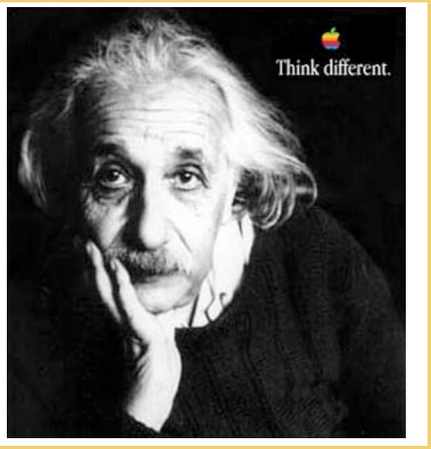
Energy =
Computation * Frequency$^2$




# Physics

Energy =
Computation * Frequency$^2$

OS adjusts speed automatically

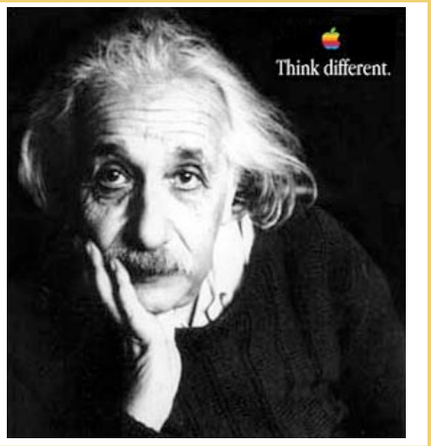



# Physics

Energy =

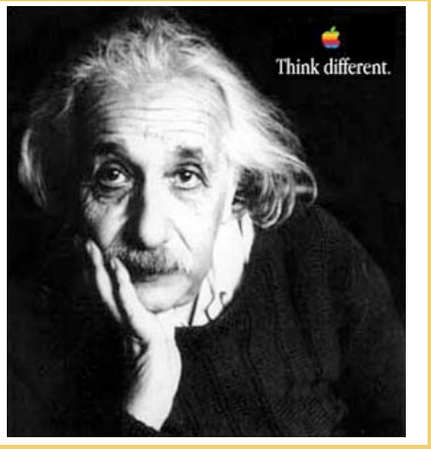
Computation * Frequency$^2$

Avoid unneeded computation




# Physics

- Minimize Computation
- Event Driven




# Physics

# Your App & Mobility

- Adopt
  - System networking
  - Reachability APIs
  - CFNetwork
- Performance
  - More async (e.g., use threading)
  - Event-driven
  - Compute less!

# Café Computing

# Mobility

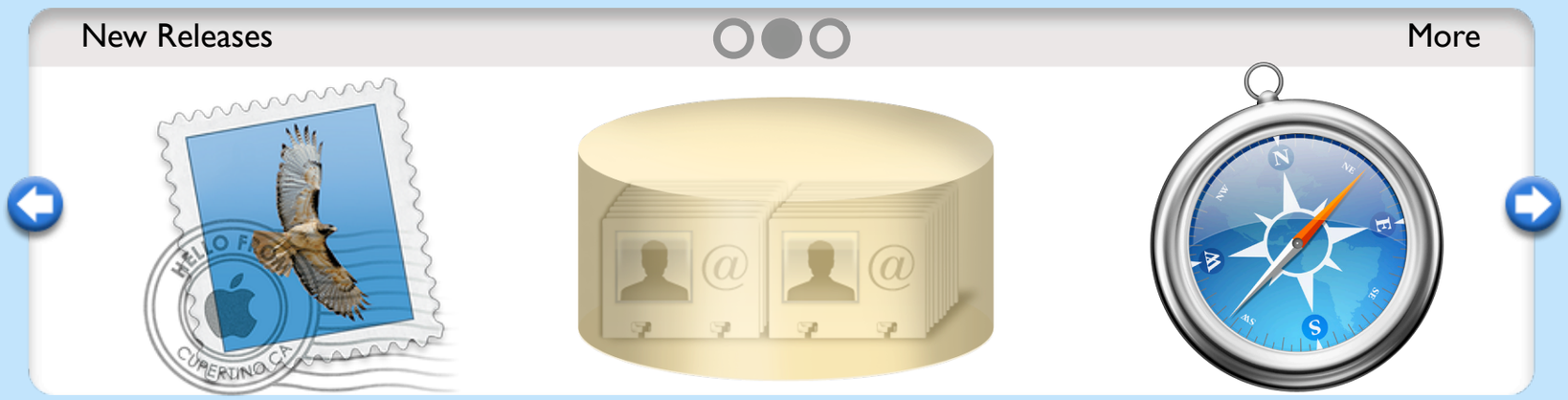
New Releases More

New Releases More

New Releases More

Reaching
People

New Releases
More


New Releases
More

New Releases
More
WWW

# Discover Your Neighbors

# Rendezvous

- Auto-discovery of neighbors
- Compatible
  - Existing networks
  - Existing protocols
  - A new way to use DNS
- Human-readable names
- Key to ad-hoc networking

# Adoption

brother

Canon

LEXMARK

EPSON

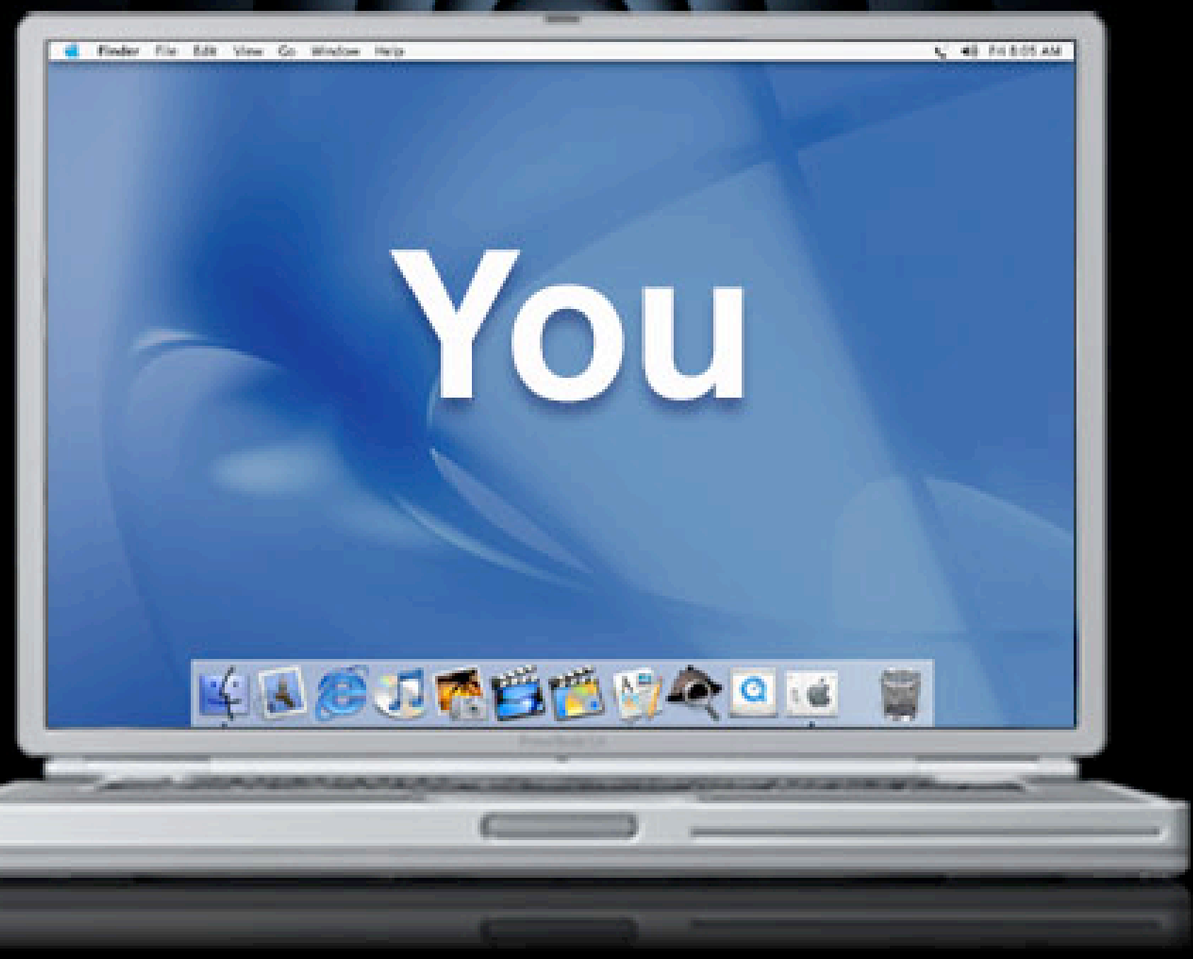
ASPYR

TiVo

WorldBook

Hydra

Finder File Edit View Go Window Help
Fri 8:05 AM
Me
iBook


Finder File Edit View Go Window Help
Fri 8:05 AM
You

# Address Book

HELLO FROM
CUPERTINO, CA

JUL
17

@

N
NE
E
SE
S
SW
W
NW

HELLO FROM
CUPERTINO, CA

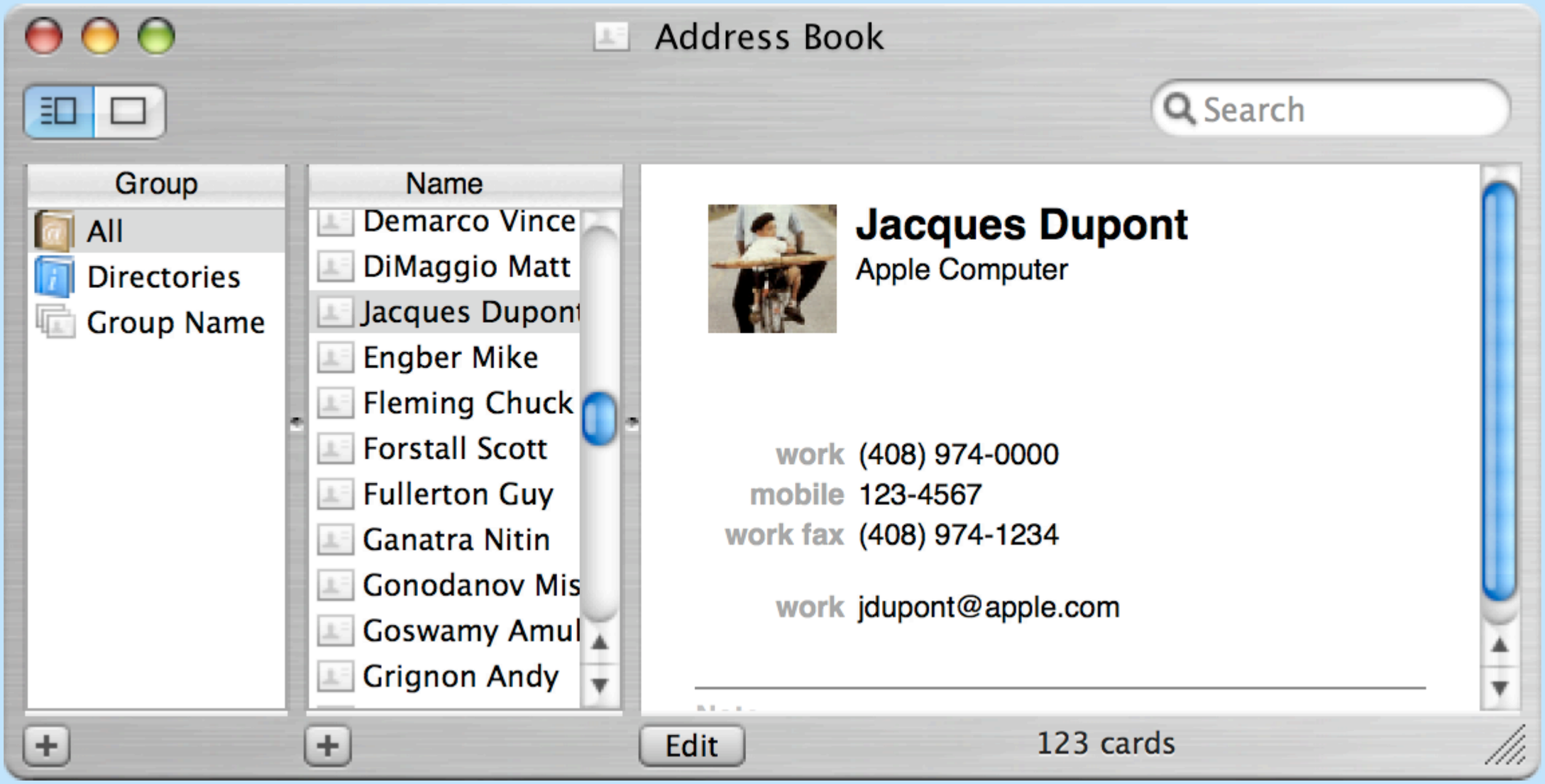
JUL
17

N
NE
E
SE
S
SW
W
NW

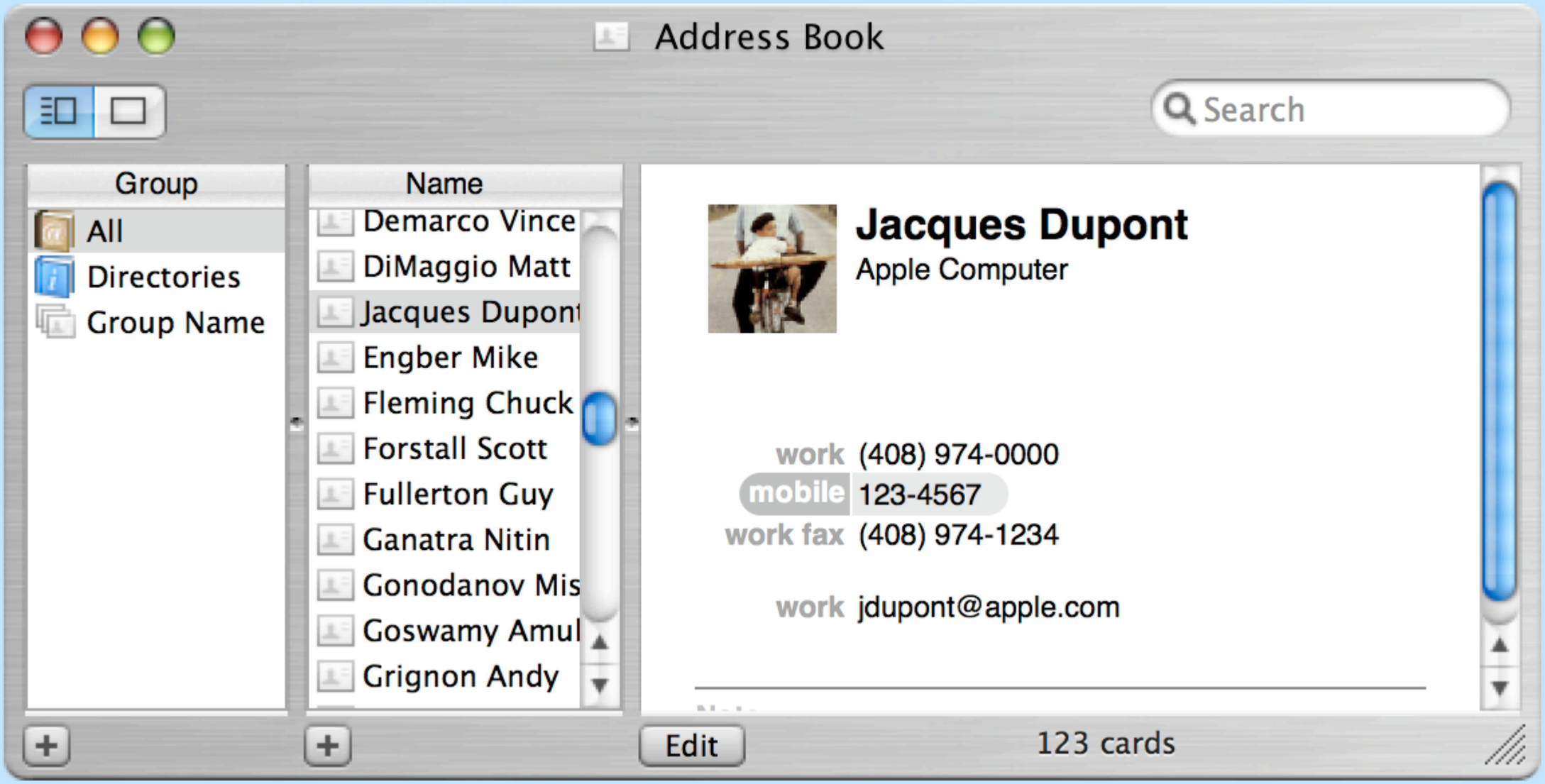
# Address Database

- System Service: Address APIs
- Hub for all communication apps
- Many refinements in Panther

# Action Plug-in



# Action Plug-in



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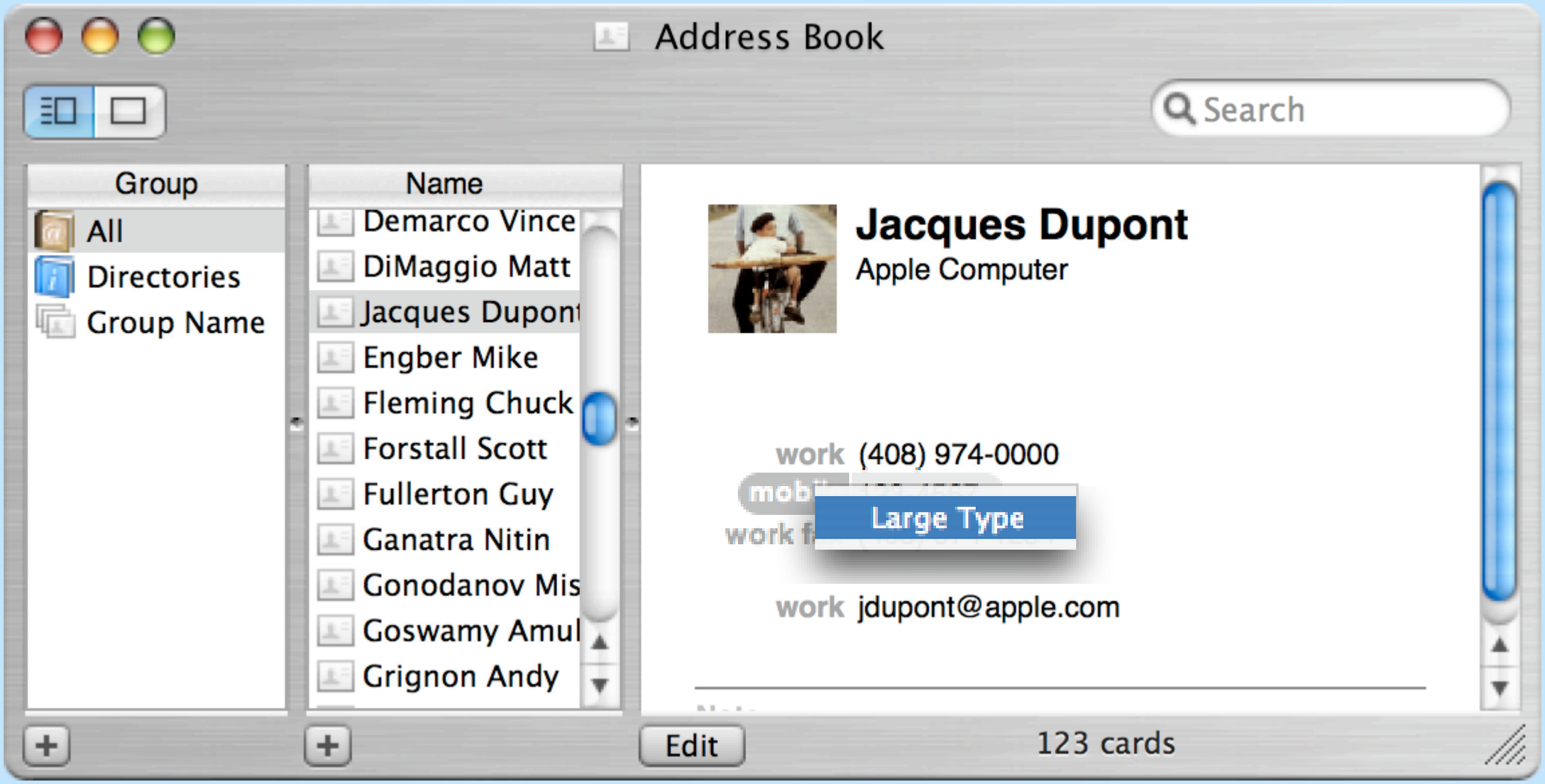
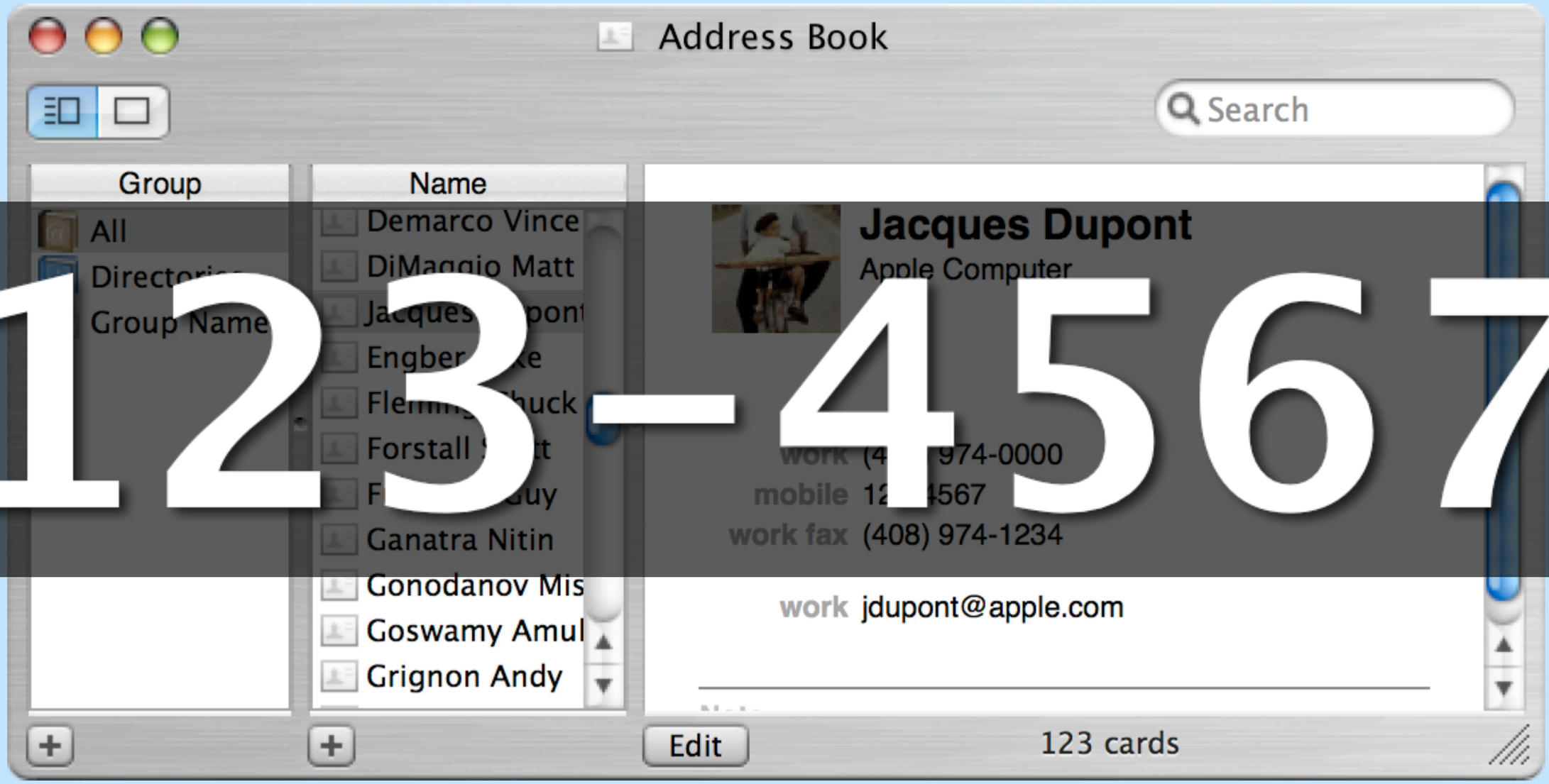
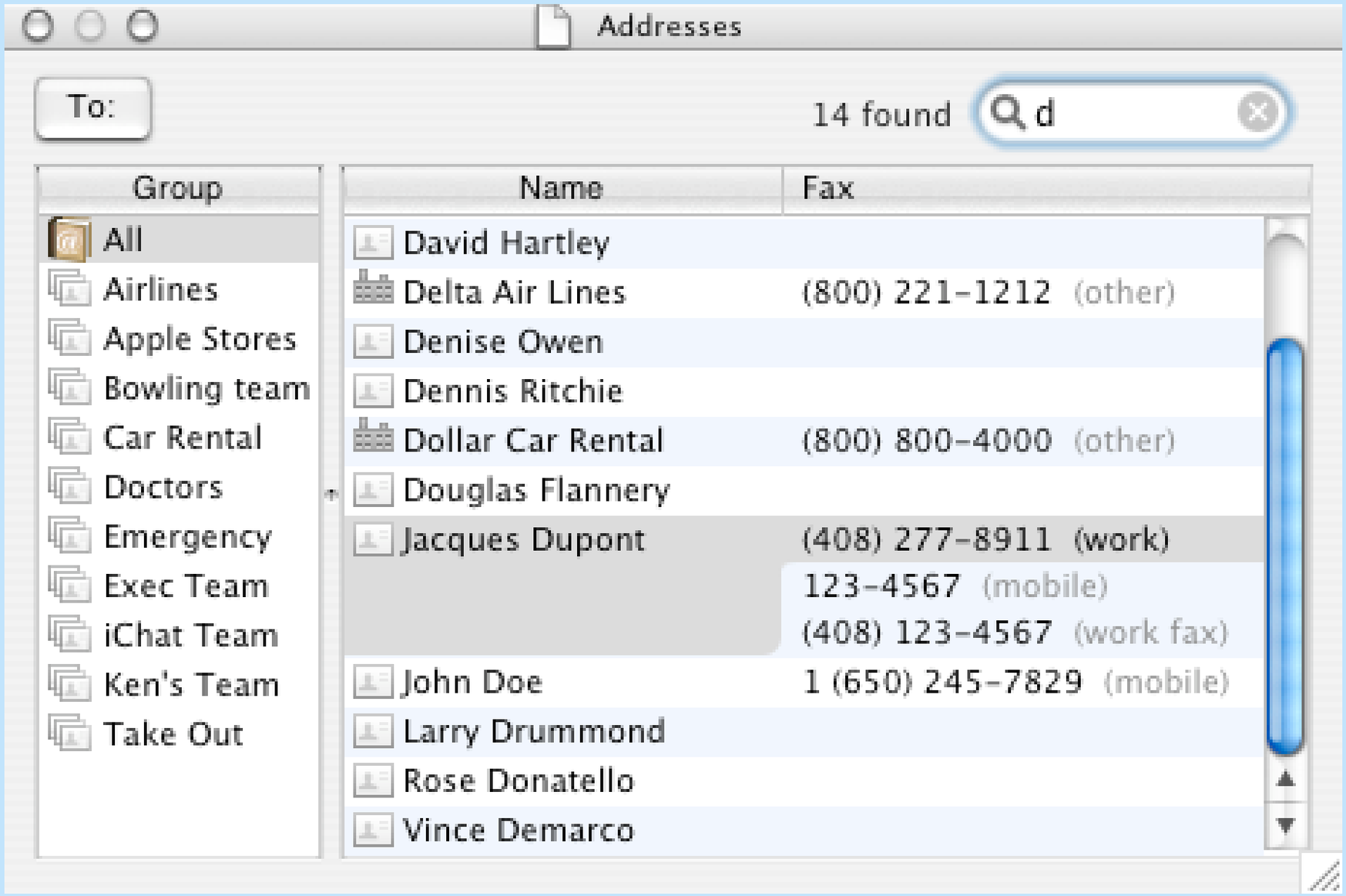


# Action Plug-in



# “People Picker” Filter and Select



# Your App Fits In

## Adopt Rendezvous

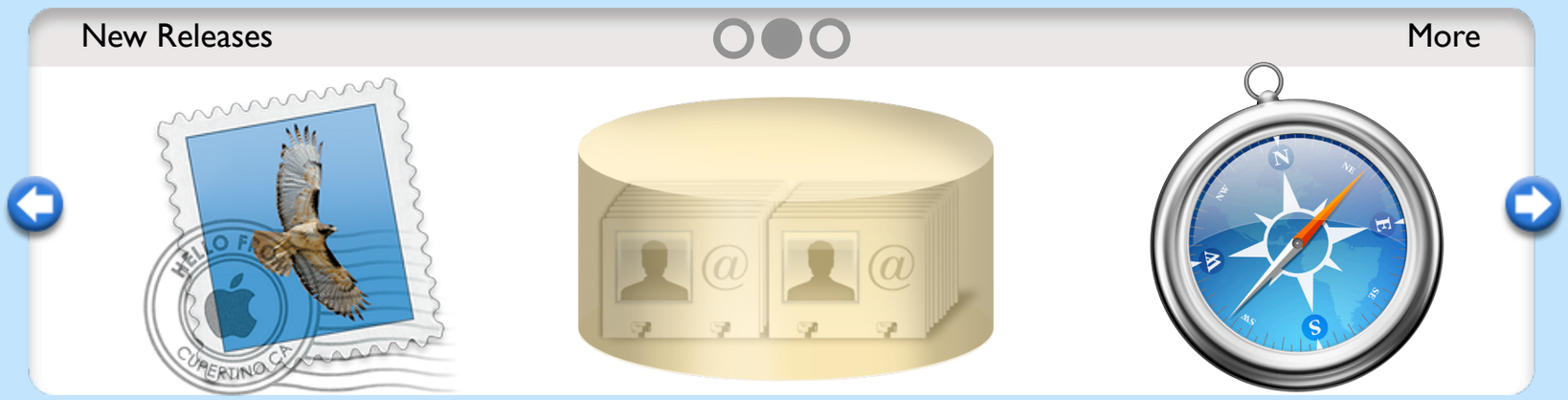
Innovate

## Adopt Address Book

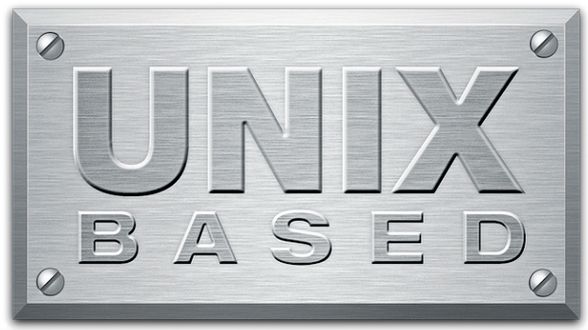
Best User Experience

Less code

# Reaching People

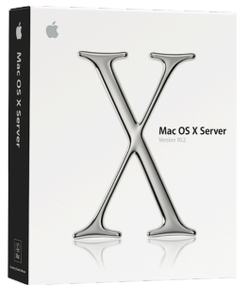


New Releases More




New Releases More

New Releases More



# Sends other UNIX boxes to /dev/null.

"My PowerBook G4 is now running every major UNIX app that we had on our Suns, AlphaStations and SGIs – and running them faster."

*–Mark Cohen, Ph.D., Professor, Brain Mapping Center, UCLA*

"This new OS has accomplished in a short period of time what others have struggled to do for years: bring a compelling, widely accepted GUI (called Aqua) to UNIX."

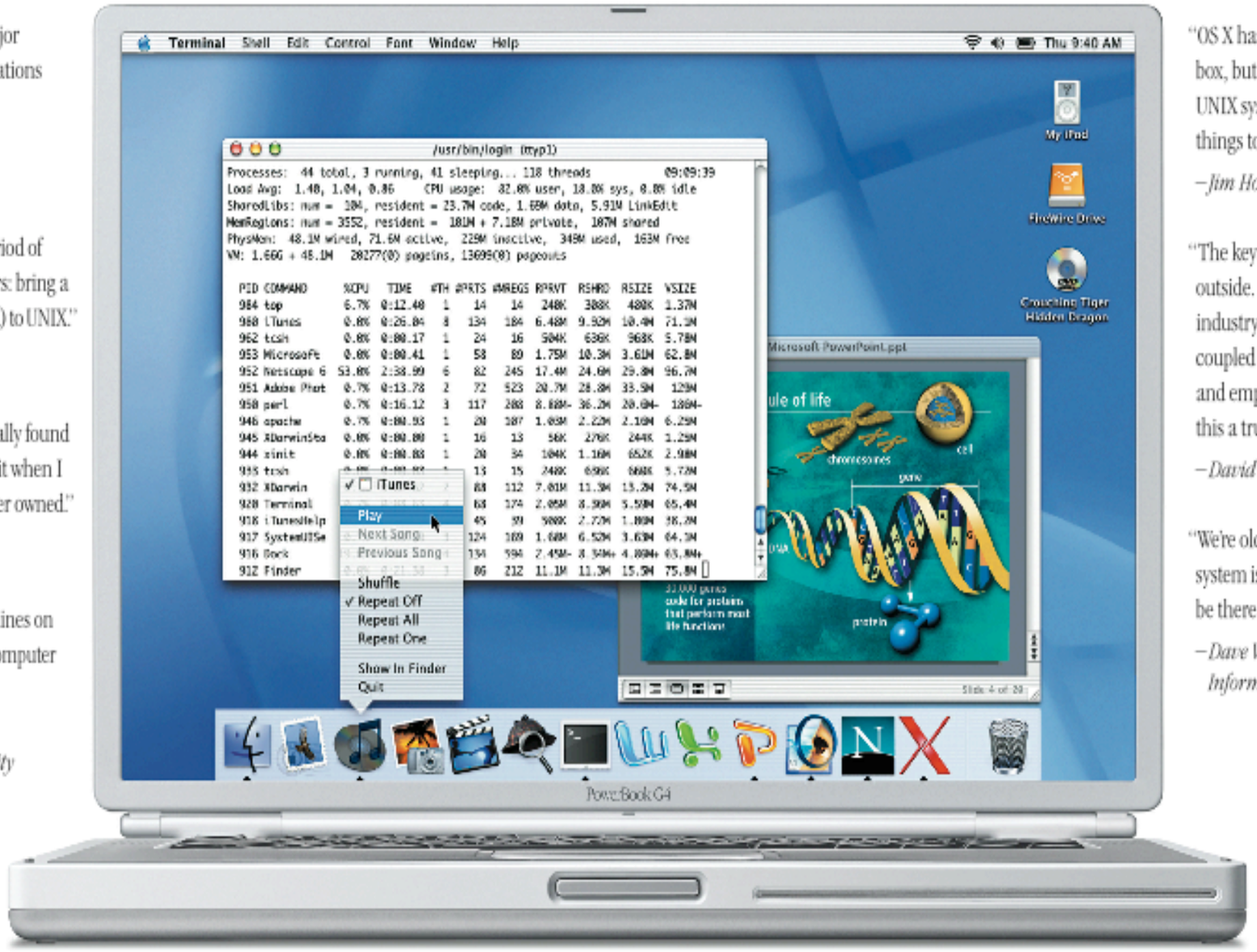
*–Tim O'Reilly, O'Reilly Network*

"After two-and-a-half years of Linux, I've finally found joy in a UNIX operating system. And I found it when I purchased a Macintosh – the first one I've ever owned."

*–John Hummel Jr., The Gamers' Press*

"Until Mac OS X came along, I had three machines on my desk. Now with Mac OS X, I can use one computer for writing, coding, research, everything."

*–Dr. Michael Cherry, Associate Professor, Department of Genetics, Stanford University*




"OS X has all the power you expect from a UNIX box, but none of the hassle associated with basic UNIX system administration. You can expect things to work and they do."

*–Jim Hourihan, Tweak Films*

"The keys to OS X are that it's UNIX inside and Mac outside. This combination of stability, support for industry standards, and wide developer support coupled with Apple's Aqua graphical user interface and emphasis on graphic performance makes this a truly great operating system."

*–David Coursey, ZDNet AnchorDesk*

"We're old hardcore UNIX hackers, so a BSD-based system is mother's milk. Everything you expect to be there is there, and it works right."

*–Dave Weininger, President, Daylight Chemical Information Systems, Inc.*

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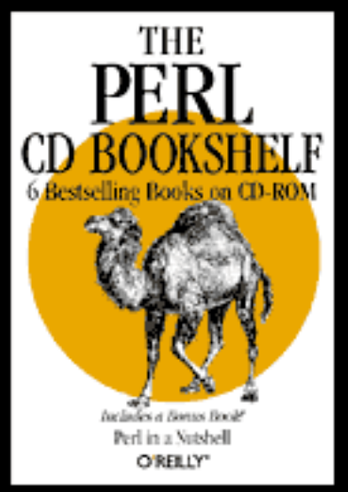
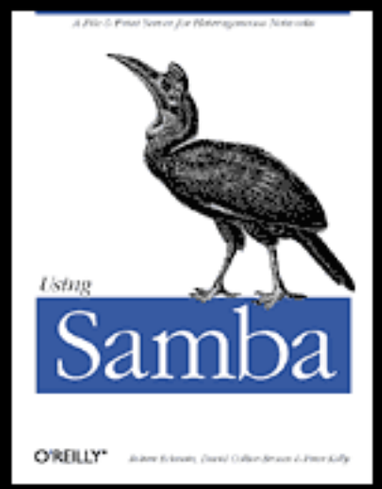
- Most solid, proven foundation
- Mainstream
- Fastest way to many features
- New markets

Research
James
Sun
microsystems

# Good Unix Citizen



# Anything Missing?

# X11

- Ubiquitous in the Unix world
  - Scientific, Higher-Ed, Enterprise, …
- Integrated
  - X11 Windows mixed in
- Fast
  - X11's OpenGL = native OpenGL

# Standards

- Added
  - libXML2
  - International Components for Unicode (ICU)
  - wchar_t, postfix, vim, net-snmp, …
- Constant refresh
  - Perl 5.8.1, python 2.2.3, Tcl 8.4.1, ruby 1.6.8, Libc (FreeBSD 5.0), samba 3.0, BIND 9, Kerberos, autoconf, more, tar, php4, UFS, …

# File Systems

- Journaling
- NFS Locking
- Mobility
  - AFP, NFS disconnection
- Performance
  - SMB, NFS, WebDAV
  - UFS

# Architecture

# The Old Way

# The Old Way

1. Design
   - Engine and APIs
   - Top-down and bottom-up
2. Write a lot of code
3. Connect to outside world

# The New Way

# Open

# Source

# The New Way

1. Pick the body of code
   - Size, speed, standardness, reputation
2. Write adaptors to your system
   - Value-added
3. Advocate changes with community

# Advantages

- Time-to-market
- Reliability
- Security
- Two-way exchange with community

# Examples

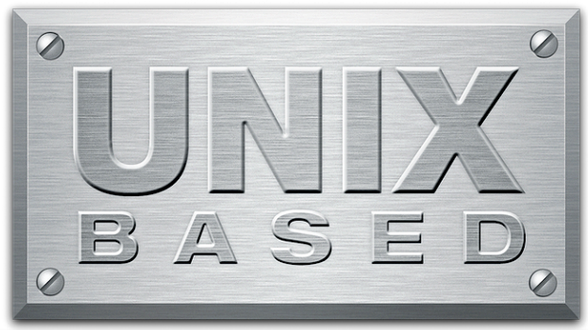
- gcc
- Darwin
- CDSA
- cups

- ICU (locales)
- FAX
- libXML2
- kHTML

# Your App & Unix

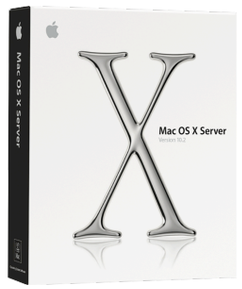
- Bring your Unix app
- New markets
- Explore new synergies
- Incorporate Open Source

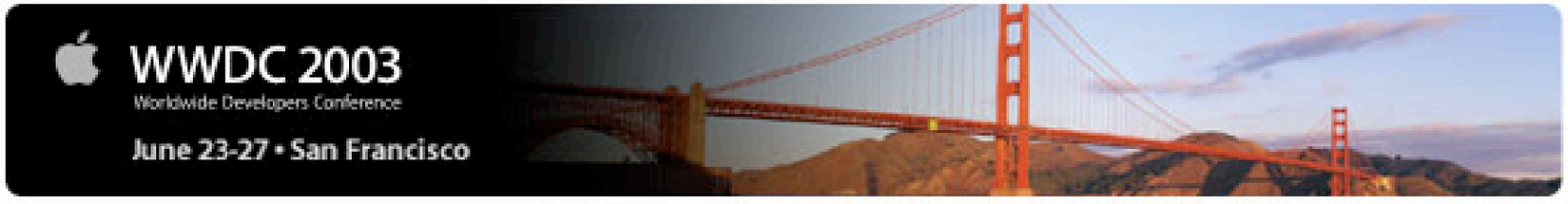
New Releases More




New Releases More

New Releases More






The complete Mac OS X experience at WWDC 2003

Registration & Pricing | Conference Sessions | Frequently Asked Questions

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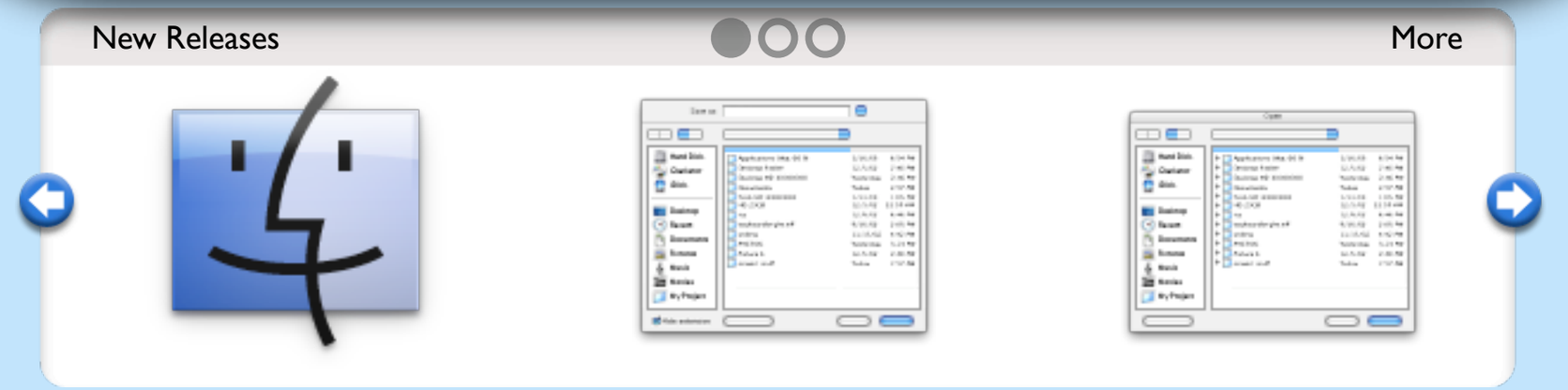
# Scott Forstall

*Senior Director*
*Platform Experience*

# Aqua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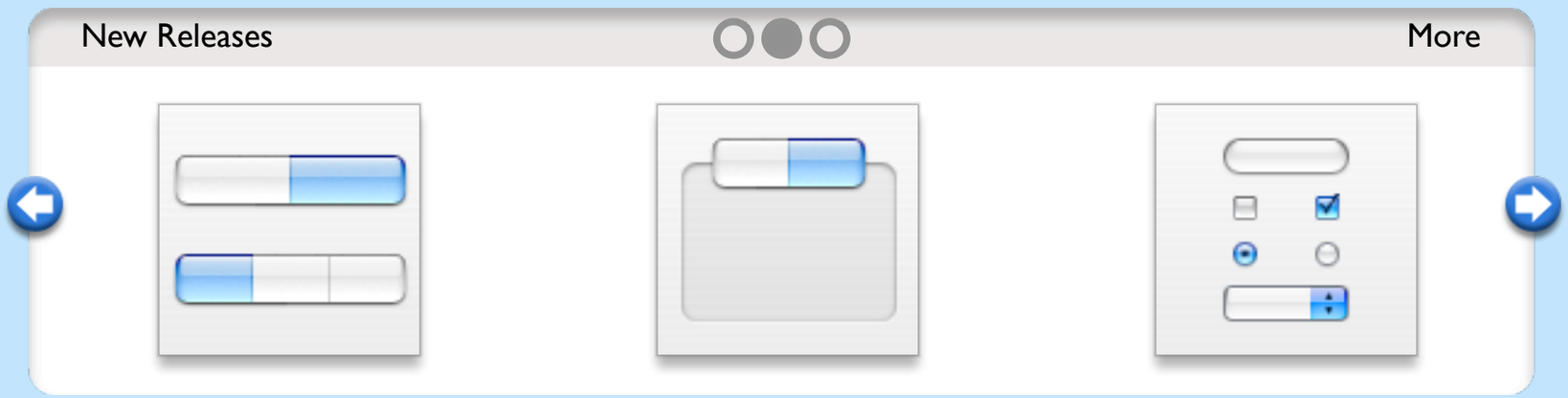
New Releases
More

New Releases
More
Search
Search
Search

Open

Save

Open

Show: All Documents

From: Documents

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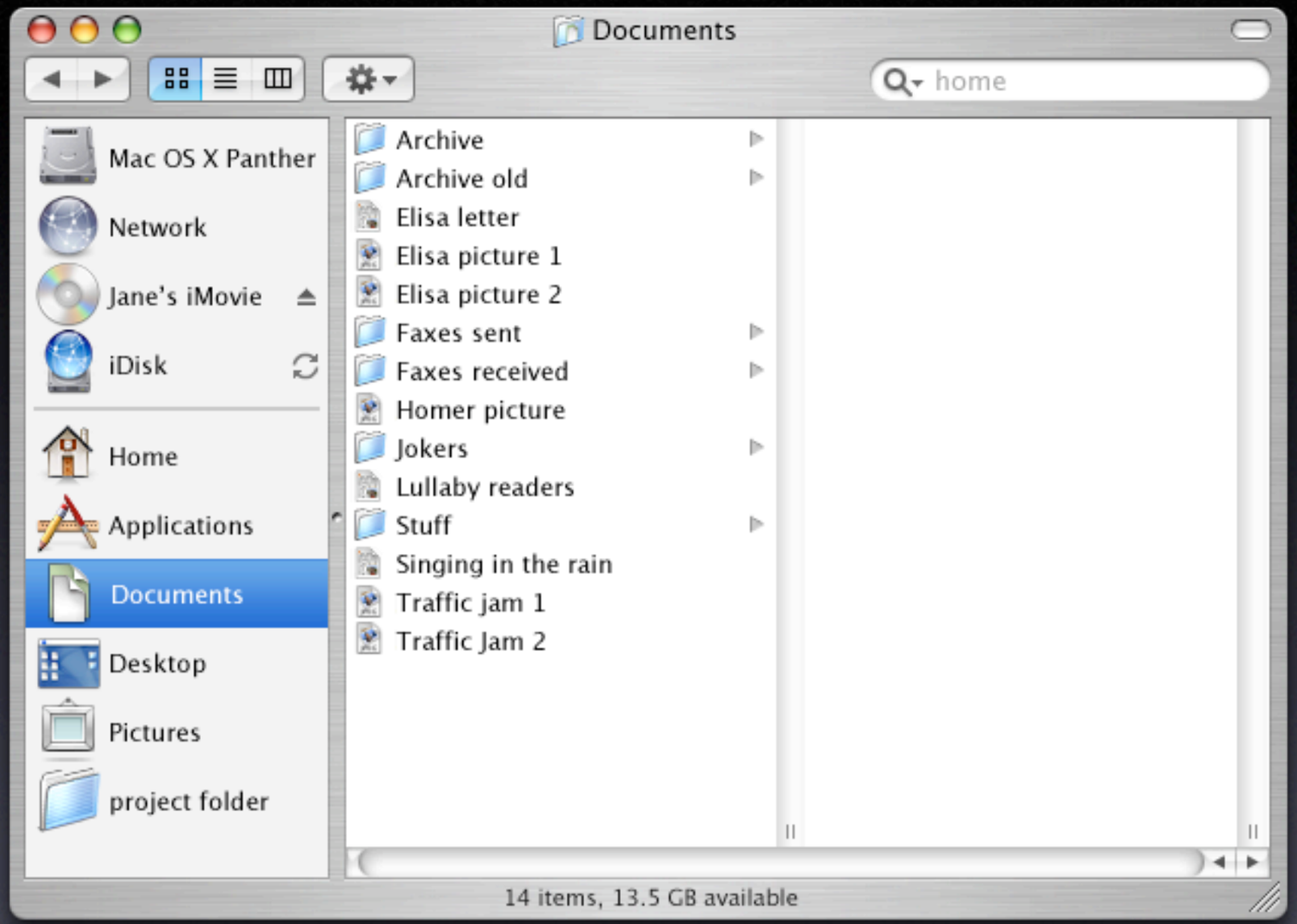
|---|---|
| Desktop | Archive |
| Documents | Archive old |
| Library | Elisa letter |
| Movies | Elisa picture 1 |
| Music | Elisa picture 2 |
| Pictures | Faxes sent |
| Public | Faxes received |
| Sites | Homer picture |
| | Jokers |
| | Lullaby readers |
| | Stuff |
| | Singing in the rain |
| | Traffic jam 1 |
| | Traffic Jam 2 |

Go to:

Add to Favorites | Cancel | Open


Documents
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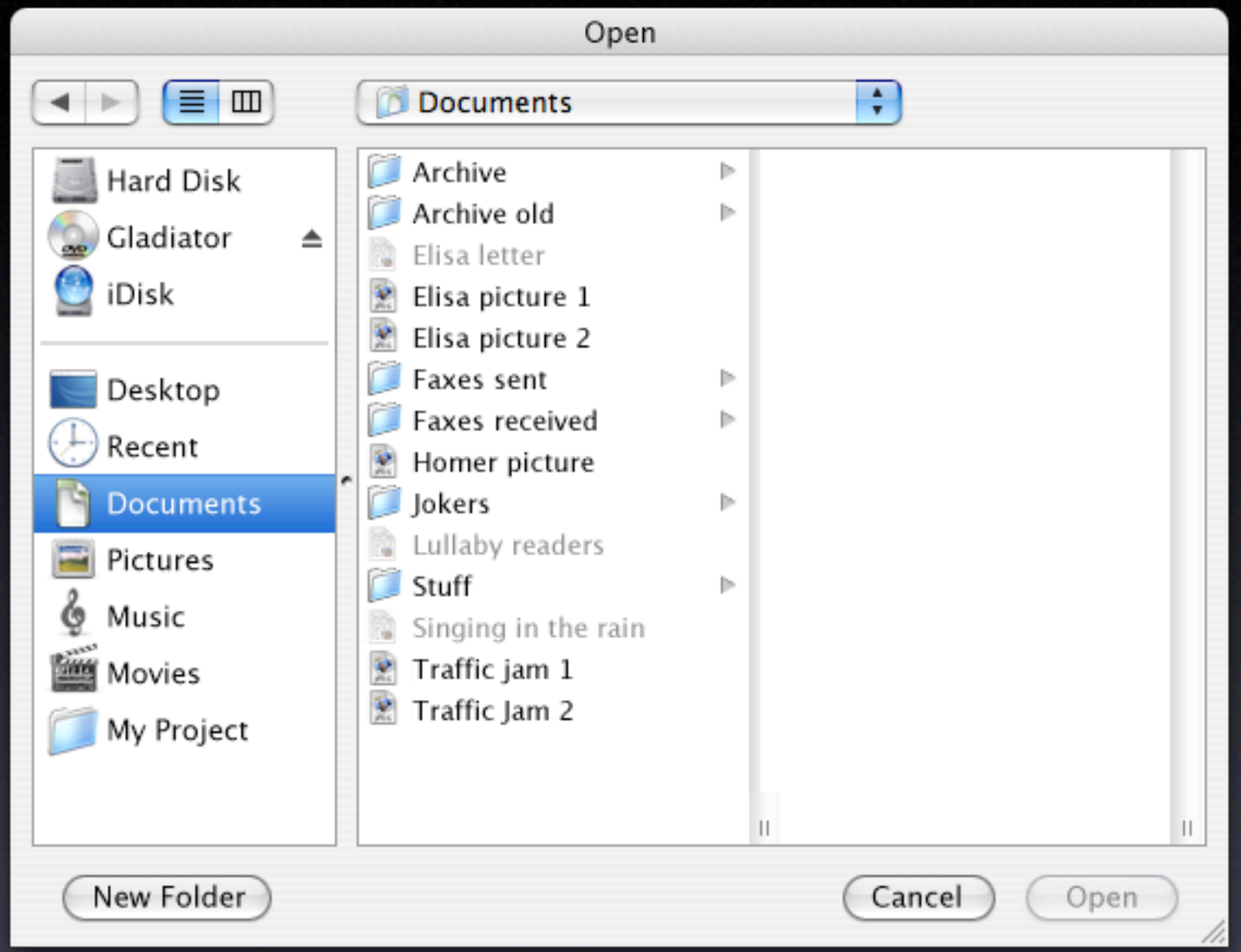
Mac OS X Panther
Network
Jane's iMovie
iDisk
Home
Applications
Documents
Desktop
Pictures
project folder
Archive
Archive old
Elisa letter
Elisa picture 1
Elisa picture 2
Faxes sent
Faxes received
Homer picture
Jokers
Lullaby readers
Stuff
Singing in the rain
Traffic jam 1
Traffic Jam 2
14 items, 13.5 GB available


Open
Documents
Hard Disk
Gladiator
iDisk
Desktop
Recent
Documents
Pictures
Music
Movies
My Project
Archive
Archive old
Elisa letter
Elisa picture 1
Elisa picture 2
Faxes sent
Faxes received
Homer picture
Jokers
Lullaby readers
Stuff
Singing in the rain
Traffic jam 1
Traffic Jam 2
New Folder
Cancel
Open

Open

Documents

Hard Disk
Gladiator
iDisk
Desktop
Recent
Documents
Pictures
Music
Movies
My Project

| Name | Date Modified | |
|---|---|---|
| Archive | 6/17/03 | 3:40 PM |
| Archive old | 6/17/03 | 3:41 PM |
| Elisa letter | 6/17/03 | 3:52 PM |
| Elisa picture 1 | Today | 9:13 PM |
| Elisa picture 2 | Today | 1:11 PM |
| Faxes sent | 6/17/03 | 3:41 PM |
| Faxes received | 6/17/03 | 10:14 PM |
| Homer picture | Yesterday | 5:20 PM |
| Jokers | 6/17/03 | 2:24 PM |
| Lullaby readers | Yesterday | 8:54 PM |
| Stuff | Yesterday | 7:21 PM |
| Singing in the rain | 6/17/03 | 11:56 PM |
| Traffic jam 1 | 6/17/03 | 1:35 PM |
| Traffic Jam 2 | Today | 4:49 PM |

New Folder
Cancel
Open

Open

Documents

Hard Disk
Gladiator
iDisk
Desktop
Recent
Documents
Pictures
Music
Movies
My Project

| Name | Date Modified |
|---|---|
| Archive | 6/17/03 3:40 PM |
| Archive old | 6/17/03 3:41 PM |
| Elisa letter | 6/17/03 3:52 PM |
| Elisa picture 1 | Today 9:13 PM |
| Elisa picture 2 | Today 1:11 PM |
| Faxes sent | 6/17/03 3:41 PM |
| Faxes received | 6/17/03 10:14 PM |
| Homer picture | Yesterday 5:20 PM |
| Jokers | 6/17/03 2:24 PM |
| Lullaby readers | Yesterday 8:54 PM |
| Stuff | Yesterday 7:21 PM |
| Singing in the rain | 6/17/03 11:56 PM |
| Traffic jam 1 | 6/17/03 1:35 PM |
| Traffic Jam 2 | Today 4:49 PM |

Plain Text Encoding: Automatic

Ignore rich text commands

New Folder Cancel Open

Untitled

Save as: Untitled

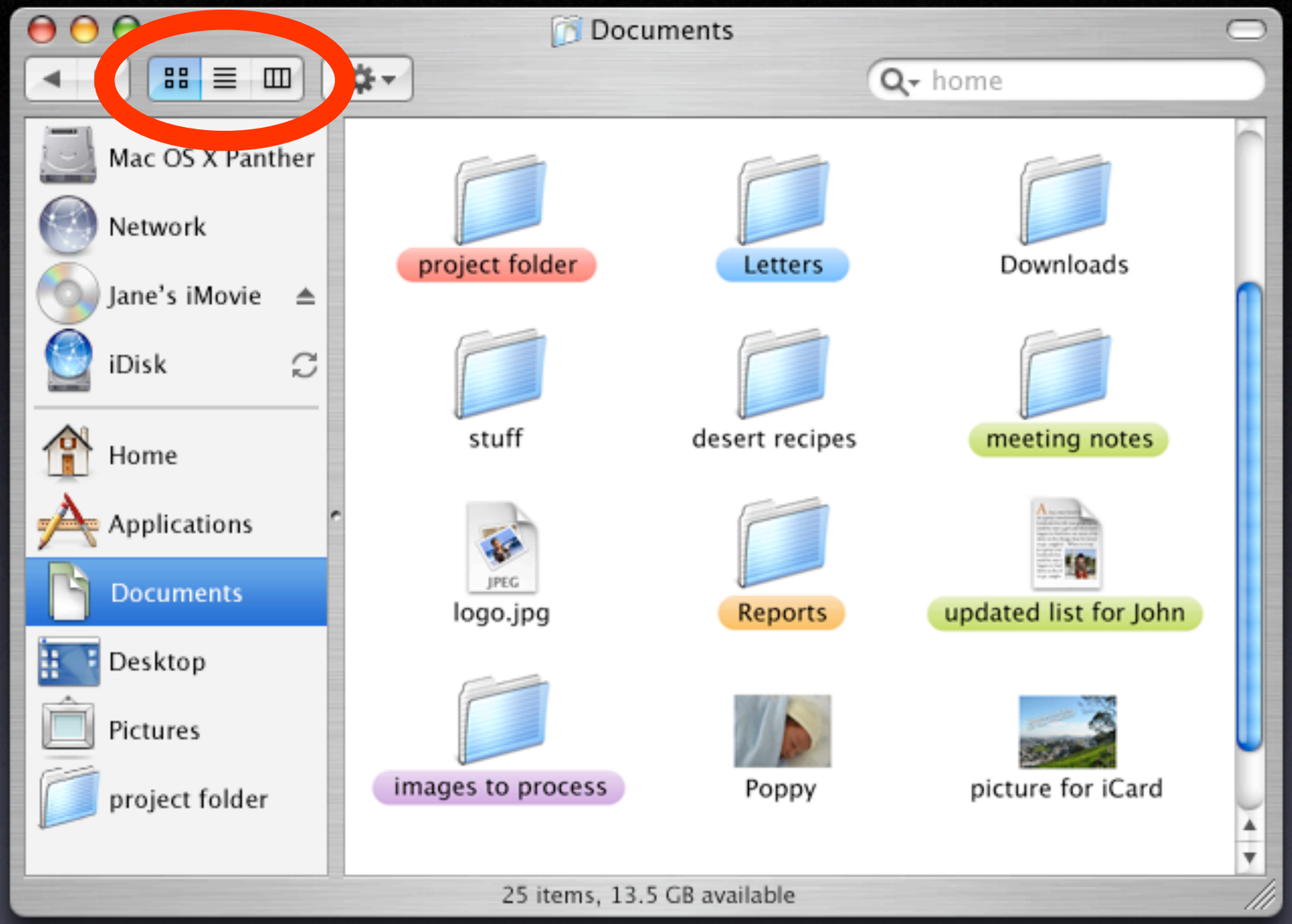
Documents

Hard Disk
Gladiator
iDisk
Desktop
Recent
Documents
Pictures
Music
Movies
My Project

| Name | Date Modified | |
|---|---|---|
| Archive | 6/17/03 | 3:40 PM |
| Archive old | 6/17/03 | 3:41 PM |
| Elisa letter | 6/17/03 | 3:52 PM |
| Elisa picture 1 | Today | 9:13 PM |
| Elisa picture 2 | Today | 1:11 PM |
| Faxes sent | 6/17/03 | 3:41 PM |
| Faxes received | 6/17/03 | 10:14 PM |
| Homer picture | Yesterday | 5:20 PM |
| Jokers | 6/17/03 | 2:24 PM |
| Lullaby readers | Yesterday | 8:54 PM |
| Stuff | Yesterday | 7:21 PM |
| Singing in the rain | 6/17/03 | 11:56 PM |
| Traffic jam 1 | 6/17/03 | 1:35 PM |
| Traffic Jam 2 | Today | 4:49 PM |

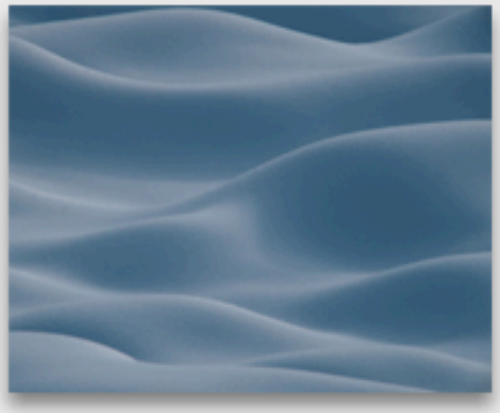
Hide extension  New Folder  Cancel  Save

# That Switcher Thing


Documents
home
Mac OS X Panther
Network
Jane's iMovie
iDisk
Home
Applications
Documents
Desktop
Pictures
project folder
project folder
Letters
Downloads
stuff
desert recipes
meeting notes
JPEG
logo.jpg
Reports
updated list for John
images to process
Poppy
picture for iCard
25 items, 13.5 GB available

iPhoto

Photo Library
Last Import
Trash

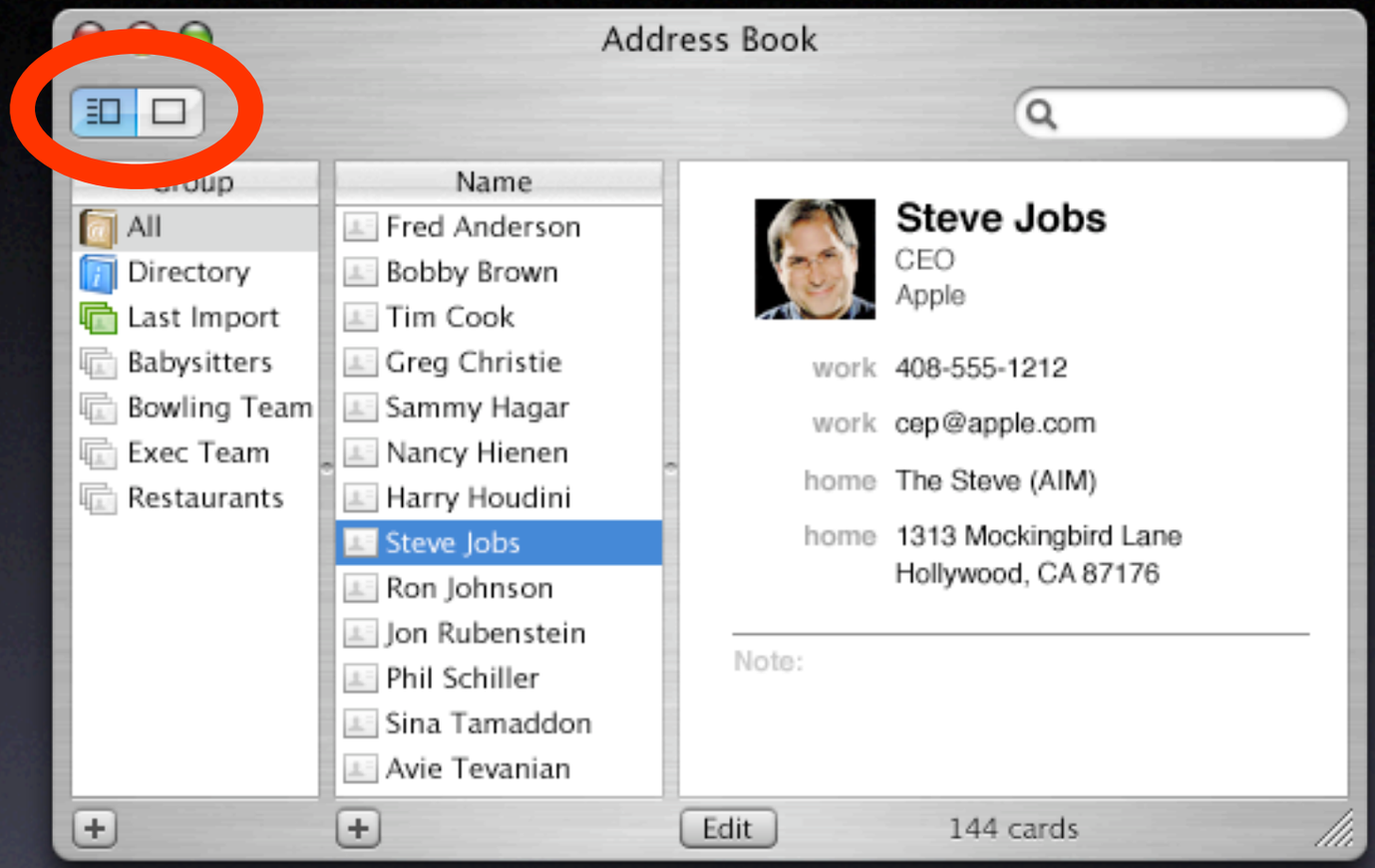


Album: Photo Library
Date: 08 Oct 2002–24 Oct 2
Size: 2 photos
Bytes: 456 KB
Music: Minuet in G

2 photos

Import | Organize | Edit | Book

Print | Slideshow | Email | Order Prints | Order Book | HomePage | .Mac Slides | Desktop | Burn


Address Book
Group
All
Directory
Last Import
Babysitters
Bowling Team
Exec Team
Restaurants
Name
Fred Anderson
Bobby Brown
Tim Cook
Greg Christie
Sammy Hagar
Nancy Hienen
Harry Houdini
Steve Jobs
Ron Johnson
Jon Rubenstein
Phil Schiller
Sina Tamaddon
Avie Tevanian
Steve Jobs
CEO
Apple
work 408-555-1212
work cep@apple.com
home The Steve (AIM)
home 1313 Mockingbird Lane
Hollywood, CA 87176
Note:
Edit
144 cards

# It’s All Yours

# Polish

Finder File Edit View Go Window Help

Wed 1:11 PM

About This Mac
Get Mac OS X Software...

System Preferences
Dock
Location

Recent Items

Force Quit...

Sleep
Restart...
Shut Down...

Log Out Scott Forstall... ⇧⌘Q

Sound

Show All | Displays | Sound | Network | Startup Disk

Sound Effects | Output | Input

**Choose an alert sound**

| Name | Kind |
|---|---|
| Basso | Built-in |
| Blow | Built-in |
| Bottle | Built-in |
| Frog | Built-in |
| Funk | Built-in |

Play alerts and sound effects through: Built-in audio controller

Alert volume:

☑ Play user interface sound effects
☑ Play feedback when volume keys are pressed

Output volume: ☐ Mute

☑ Show volume in menu bar

Untitled

Styles | Spacing

0 1 2 3 4

Finder File Edit View Go Window Help

Wed 1:11 PM

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☑ Show volume in menu bar

Untitled

0 1 2 3 4

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Dock ▶
Location ▶

Recent Items ▶

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☑ Play user interface sound effects
☑ Play feedback when volume keys are pressed

lume: ☐ Mute

☑ Show volume in menu bar

Untitled

Styles | Spacing

0 1 2 3 4 5 6

Finder File Edit View Go Window Help

Wed 1:11 PM

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Location

Recent Items

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| Blow | Built-in |
| Bottle | Built-in |

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Mute

Font

| Collections | Family | Typeface | Size |
|---|---|---|---|
| All Fonts | Helvetica | Bold | 12 |
| Favorites | Helvetica Neue | Regular | 9 |
| Classic | Herculanum | | 10 |
| Fixed Width | Hiragino Kaku Gothi | | 11 |
| Fun | Hiragino Kaku Gothi | | 12 |
| Modern | Hiragino Maru Gothi | | 13 |
| PDF | Hiragino Mincho Pro | | 14 |
| Web | Hoefler Text | | 18 |
| | Lucida Grande | | 24 |
| | Marker Felt | | 36 |
| | Monaco | | 48 |
| | Optima | | 64 |
| | Osaka | | 72 |
| | Papyrus | | 96 |

+ − A

Search

Untitled

Styles

Spacing

0 1 2 3

Finder File Edit View Go Window Help

Wed 1:11 PM

About This Mac
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Recent Items

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| Blow | Built-in |
| Bottle | Built-in |

Untitled

Font

All Fonts
Favorites
Classic
Fixed Width
Fun
Modern
PDF
Web

Helvetica
Helvetica Neue
Herculanum
Hiragino Kaku Gothi
Hiragino Kaku Gothi
Hiragino Maru Gothi
Hiragino Mincho Pro
Hoefler Text
Lucida Grande
Marker Felt
Monaco
Optima
Osaka
Papyrus

Bold
Regular

12

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Search

o controller

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Mute

Finder File Edit View Go Window Help

Wed 1:11 PM

About This Mac
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Location

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Favorites
Classic
Fixed Width
Fun
Modern
PDF
Web

Helvetica
Helvetica Neue
Herculanum
Hiragino Kaku Gothi
Hiragino Kaku Gothi
Hiragino Maru Gothi
Hiragino Mincho Pro
Hoefler Text
Lucida Grande
Marker Felt
Monaco
Optima
Osaka
Papyrus

Bold
Regular

12

9 10 11 12 13 14 18 24 36 48 64 72 96

Search

Untitled

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Mute

Finder File Edit View Go Window Help

Wed 1:11 PM

About This Mac
Get Mac OS X Software...

System Preferences
Dock
Location

Recent Items

Force Quit...

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Restart...
Shut Down...

Log Out Scott Forstall... ⇧⌘Q

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| Blow | Built-in |
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Font

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Bold
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9 10 11 12 13 14 18 24 36 48 64 72 96

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Play alerts and sound effects through: Built-in audio controller

Alert volume:

☑ Play user interface sound effects
☑ Play feedback when volume keys are pressed

Output volume: ☐ Mute

☑ Show volume in menu bar

Untitled

Styles | Spacing

0 1 2 3 4

Finder File Edit View Go Window Help

Wed 1:11 PM

About This Mac
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System Preferences
Dock
Location

Recent Items

Force Quit...

Sleep
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Shut Down...

Log Out Scott Forstall... ⇧⌘Q

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Play feedback when volume keys are pressed

Output volume: Mute

Show volume in menu bar

Untitled

Styles | Spacing

0 1 2 3 4

# Size Matters

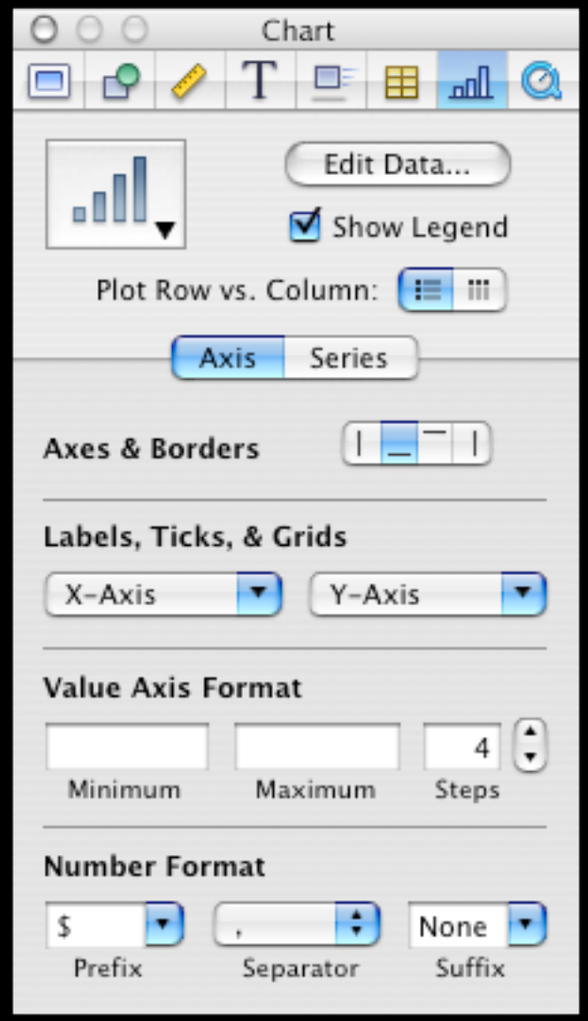
Chart
Edit Data...
Show Legend
Plot Row vs. Column:
Axis
Series
Axes & Borders
Labels, Ticks, & Grids
X-Axis
Y-Axis
Value Axis Format
4
Minimum
Maximum
Steps
Number Format
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None
Prefix
Separator
Suffix

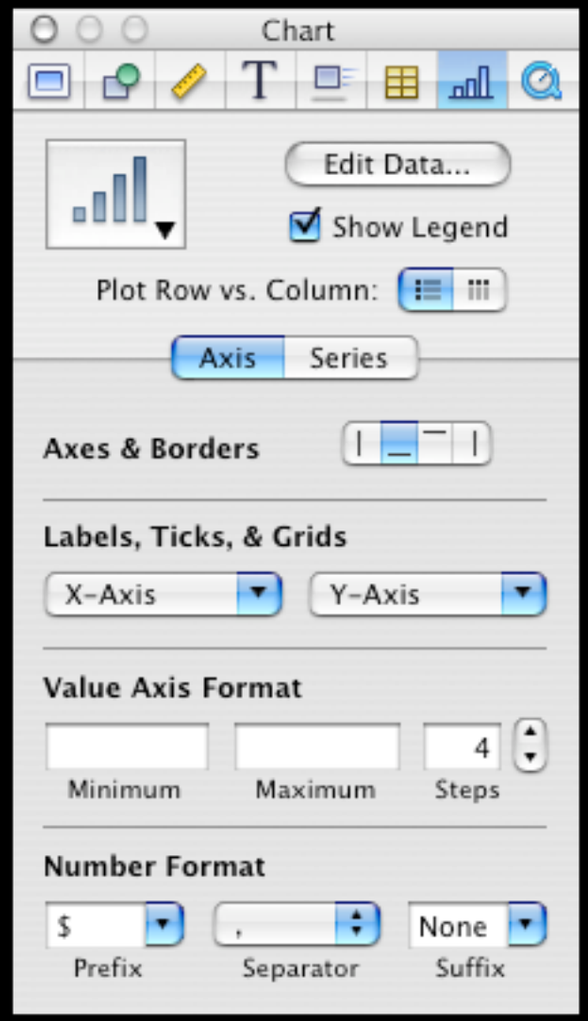


Chart
Edit Data...
Show Legend
Plot Row vs. Column:
Axis
Series
Axes & Borders
Labels, Ticks, & Grids
X-Axis
Y-Axis
Value Axis Format
4
Minimum
Maximum
Steps
Number Format
$
,
None
Prefix
Separator
Suffix

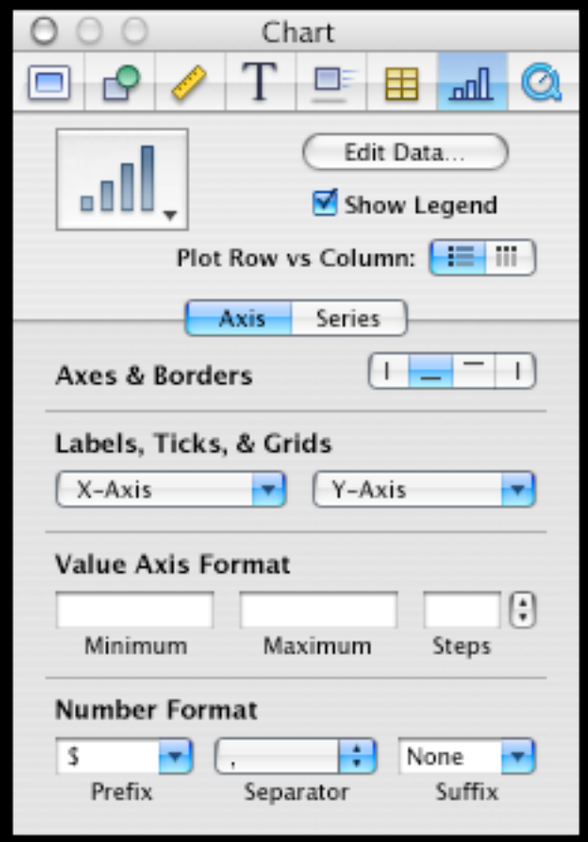


Chart
Edit Data...
Show Legend
Plot Row vs Column:
Axis
Series
Axes & Borders
Labels, Ticks, & Grids
X-Axis
Y-Axis
Value Axis Format
Minimum
Maximum
Steps
Number Format
$
,
None
Prefix
Separator
Suffix

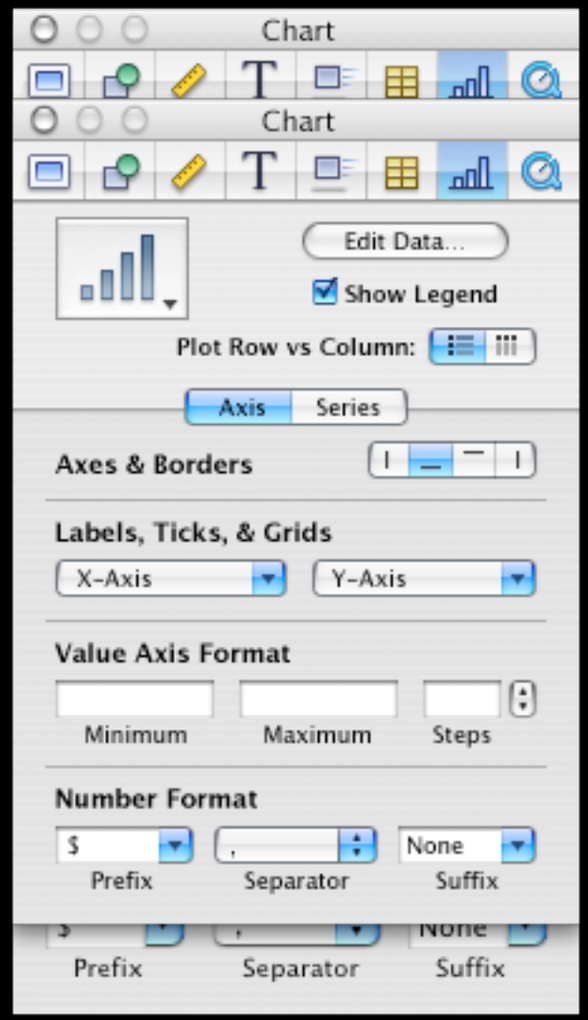


Chart
Chart
Edit Data...
Show Legend
Plot Row vs Column:
Axis
Series
Axes & Borders
Labels, Ticks, & Grids
X-Axis
Y-Axis
Value Axis Format
Minimum
Maximum
Steps
Number Format
$
,
None
Prefix
Separator
Suffix

# Search

iTunes

U2
Elapsed Time: 0:24

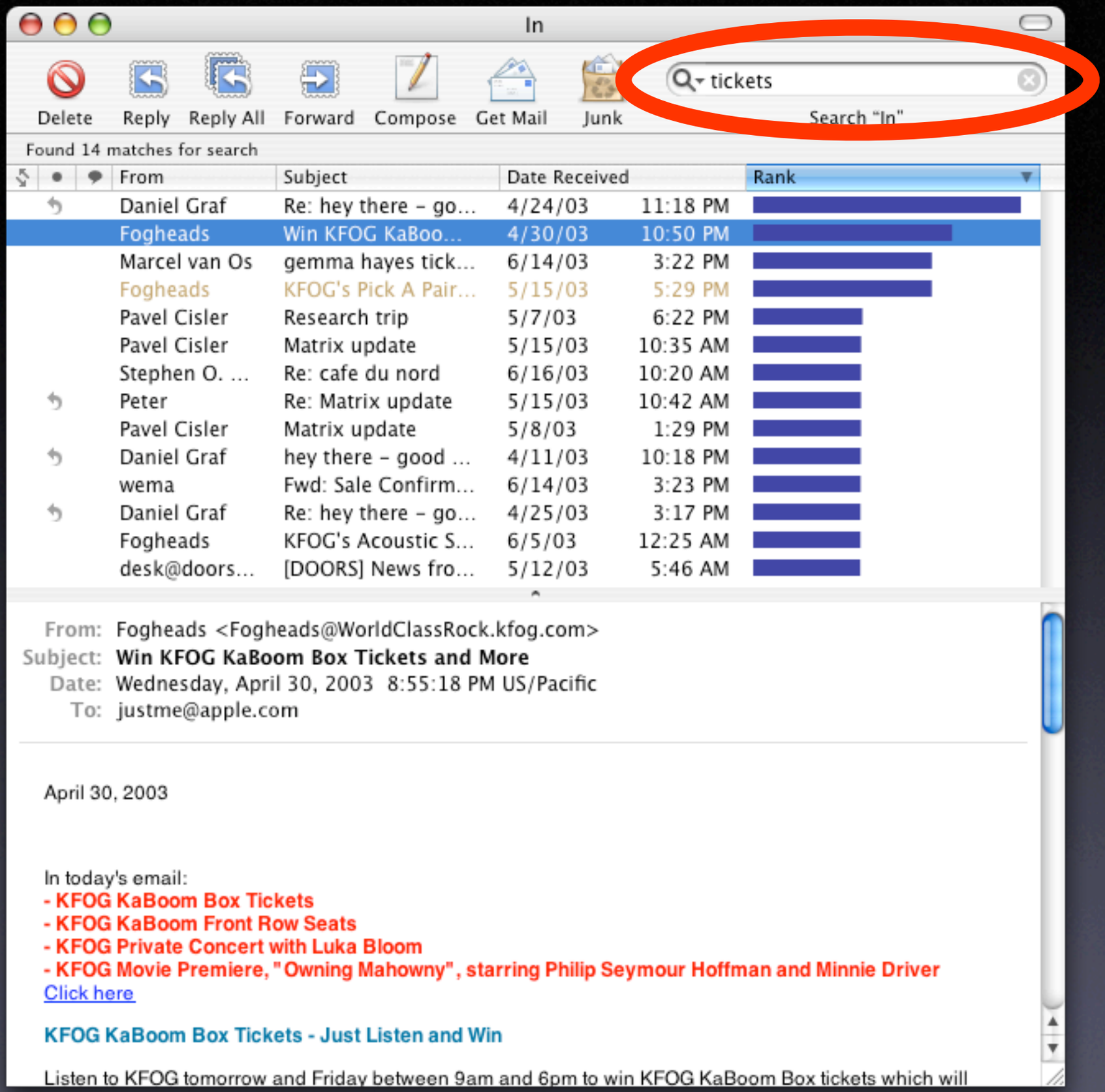
walk on

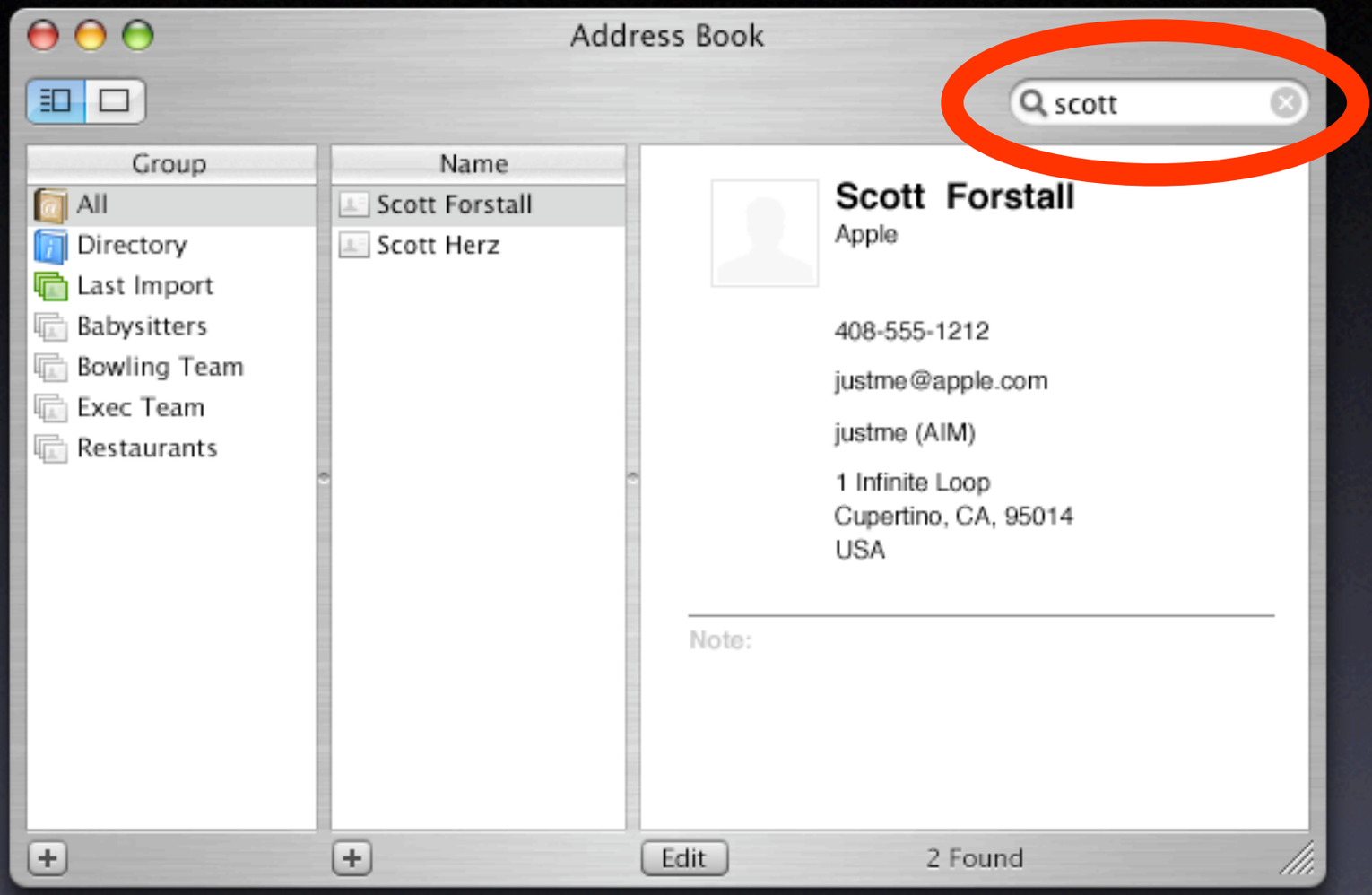
Browse

| Source |
| --- |
| MOX trAcks |
| Radio |
| Music Store |
| Shopping Cart |
| Purchased Music |
| Shared Music |
| My Top Rated |
| Recently Played |
| Top 25 Most Played |
| Flight music |
| new |

| Song Name | Artist | Album | Track # | My Rating | Play Count | I |
| --- | --- | --- | --- | --- | --- | --- |
| Walk On | U2 | All That You Can't Leave Behind | 4 of 11 | | 20 | 5 |
| walk on | U2 | Elevation Tour - Oakland | 23 of 23 | | 4 | 3 |
| Walking On The Moon | The Police | Message In A Box: The Compl... | 1 of 21 | | | |
| Carbon | Tori Amos | Scarlet's Walk | 5 of 18 | | 3 | 6 |
| Don't Make Me Come To Vegas | Tori Amos | Scarlet's Walk | 8 of 18 | | 2 | 6 |
| Walk On | U2 | SJ Arena 4-20-01 | 21 of 21 | | 1 | 4 |
| I Won't Walk Away | Jewel | This way | 10 of 14 | | 4 | 5 |
| Walk On (Single Version) | U2 | U2 7 | 6 of 7 | | 18 | 6 |

8 songs, 43.1 minutes, 53.8 MB


In
Delete
Reply
Reply All
Forward
Compose
Get Mail
Junk
tickets
Search "In"
Found 14 matches for search
From
Subject
Date Received
Rank
Daniel Graf Re: hey there - go... 4/24/03 11:18 PM
Fogheads Win KFOG KaBoo... 4/30/03 10:50 PM
Marcel van Os gemma hayes tick... 6/14/03 3:22 PM
Fogheads KFOG's Pick A Pair... 5/15/03 5:29 PM
Pavel Cisler Research trip 5/7/03 6:22 PM
Pavel Cisler Matrix update 5/15/03 10:35 AM
Stephen O. ... Re: cafe du nord 6/16/03 10:20 AM
Peter Re: Matrix update 5/15/03 10:42 AM
Pavel Cisler Matrix update 5/8/03 1:29 PM
Daniel Graf hey there - good ... 4/11/03 10:18 PM
wema Fwd: Sale Confirm... 6/14/03 3:23 PM
Daniel Graf Re: hey there - go... 4/25/03 3:17 PM
Fogheads KFOG's Acoustic S... 6/5/03 12:25 AM
desk@doors... [DOORS] News fro... 5/12/03 5:46 AM
From: Fogheads <Fogheads@WorldClassRock.kfog.com>
Subject: Win KFOG KaBoom Box Tickets and More
Date: Wednesday, April 30, 2003 8:55:18 PM US/Pacific
To: justme@apple.com
April 30, 2003
In today's email:
- KFOG KaBoom Box Tickets
- KFOG KaBoom Front Row Seats
- KFOG Private Concert with Luka Bloom
- KFOG Movie Premiere, "Owning Mahowny", starring Philip Seymour Hoffman and Minnie Driver
Click here
KFOG KaBoom Box Tickets - Just Listen and Win
Listen to KFOG tomorrow and Friday between 9am and 6pm to win KFOG KaBoom Box tickets which will


Address Book
scott
Group
All
Directory
Last Import
Babysitters
Bowling Team
Exec Team
Restaurants
Name
Scott Forstall
Scott Herz
Scott Forstall
Apple
408-555-1212
justme@apple.com
justme (AIM)
1 Infinite Loop
Cupertino, CA, 95014
USA
Note:
Edit
2 Found

iCal

Calendars

- General
- Apple Holiday
- US Holidays
- Vacation

December 2003

| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|---|---|---|---|---|---|---|
| 30 | 1 | 2 | 3 | 4 | 5 | 6 |
| | | | | | | • Zendo haircut 11, Courtney |
| 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 |
| 28 | 29 | 30 | 31 | … | 1 | 2 | 3 |

**December 2003**

| S | M | T | W | T | F | S |
|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 |
| 28 | 29 | 30 | 31 | | | |

**January 2004**

| S | M | T | W | T | F | S |
|---|---|---|---|---|---|---|
| | | | | 1 | 2 | 3 |
| 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 11 | 12 | 13 | 14 | 15 | 16 | 17 |
| 18 | 19 | 20 | 21 | 22 | 23 | 24 |
| 25 | 26 | 27 | 28 | 29 | 30 | 31 |

**February 2004**

| S | M | T | W | T | F | S |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| 15 | 16 | 17 | 18 | 19 | 20 | 21 |
| 22 | 23 | 24 | 25 | 26 | 27 | 28 |
| 29 | | | | | | |

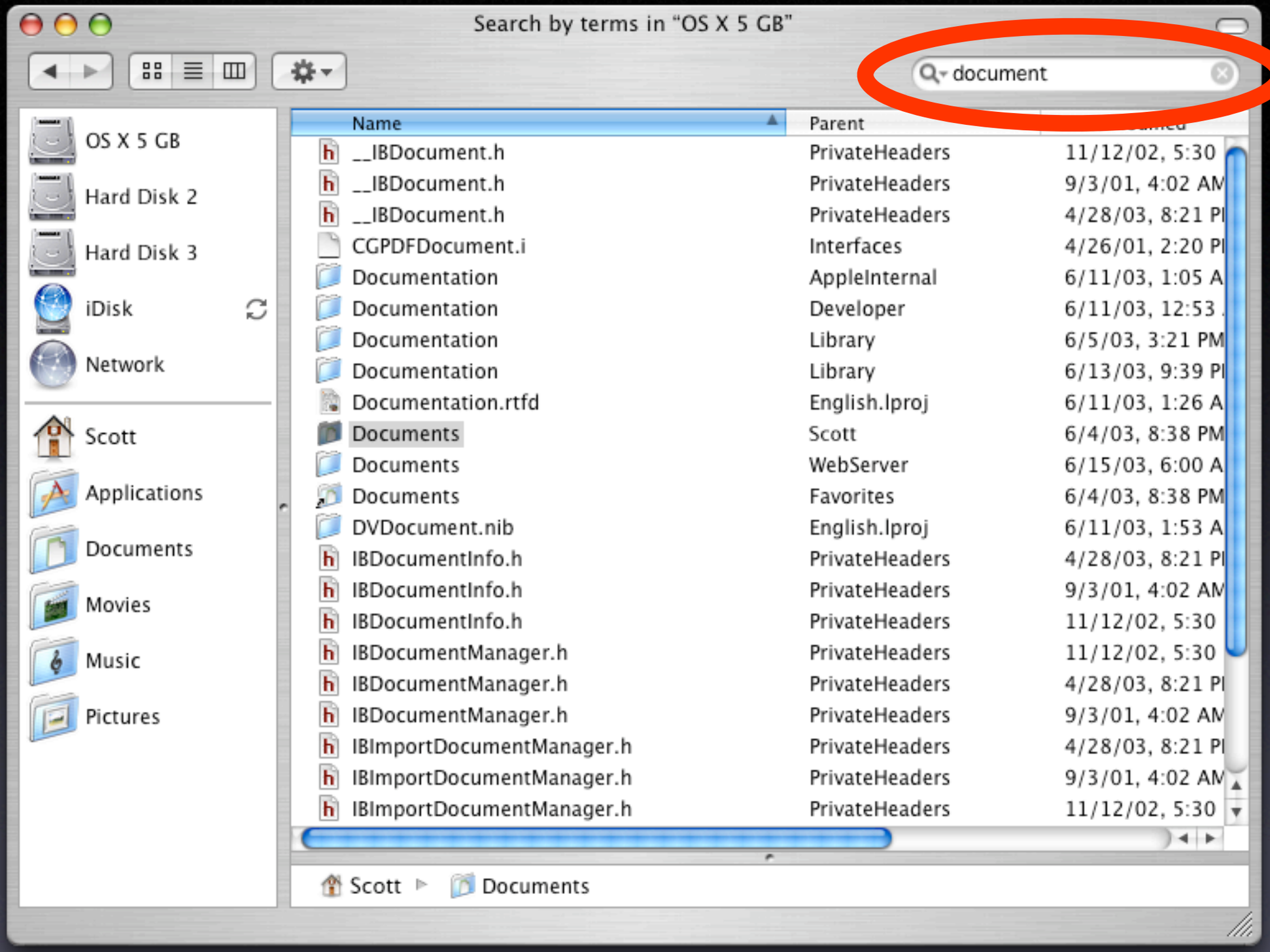
**March 2004**

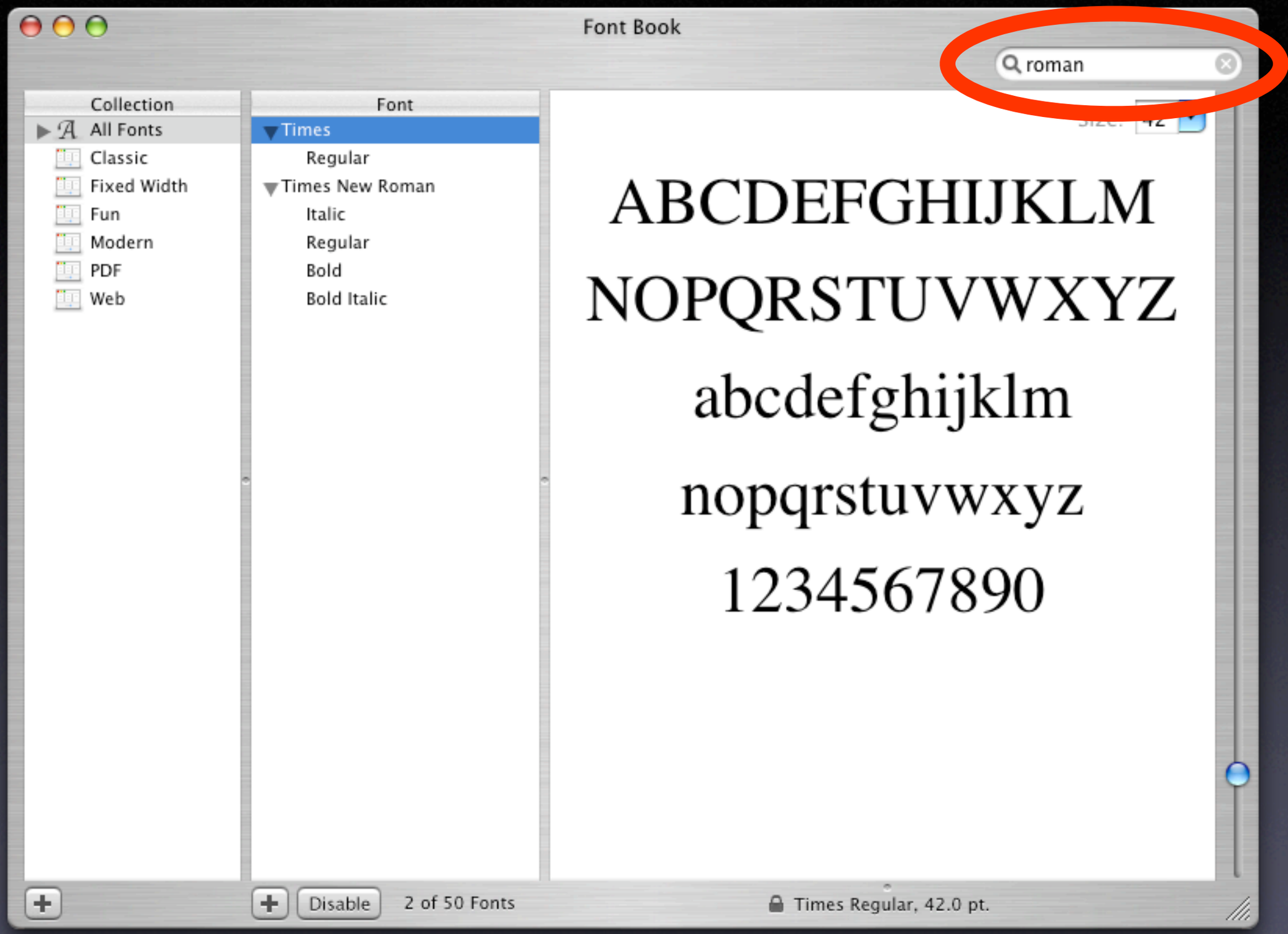
| S | M | T | W | T | F | S |
|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 |
| 28 | 29 | 30 | 31 | | | |

| | Search Result |
|---|---|
| 3/27/04 11:00AM | Zendo haircut 11, Courtney |
| 5/22/04 11:00AM | Zendo haircut 11, Courtney |
| 7/17/04 11:00AM | Zendo haircut 11, Courtney |
| 9/11/04 11:00AM | Zendo haircut 11, Courtney |
| 11/6/04 11:00AM | Zendo haircut 11, Courtney |
| 1/1/05 11:00AM | Zendo haircut 11, Courtney |
| 2/26/05 11:00AM | Zendo haircut 11, Courtney |
| 4/23/05 11:00AM | Zendo haircut 11, Courtney |

Day Week Month

hair


Search by terms in "OS X 5 GB"
document
OS X 5 GB
Hard Disk 2
Hard Disk 3
iDisk
Network
Scott
Applications
Documents
Movies
Music
Pictures
Name
Parent
__IBDocument.h PrivateHeaders 11/12/02, 5:30
__IBDocument.h PrivateHeaders 9/3/01, 4:02 AM
__IBDocument.h PrivateHeaders 4/28/03, 8:21 PM
CGPDFDocument.i Interfaces 4/26/01, 2:20 PM
Documentation AppleInternal 6/11/03, 1:05 AM
Documentation Developer 6/11/03, 12:53 PM
Documentation Library 6/5/03, 3:21 PM
Documentation Library 6/13/03, 9:39 PM
Documentation.rtfd English.lproj 6/11/03, 1:26 AM
Documents Scott 6/4/03, 8:38 PM
Documents WebServer 6/15/03, 6:00 AM
Documents Favorites 6/4/03, 8:38 PM
DVDocument.nib English.lproj 6/11/03, 1:53 AM
IBDocumentInfo.h PrivateHeaders 4/28/03, 8:21 PM
IBDocumentInfo.h PrivateHeaders 9/3/01, 4:02 AM
IBDocumentInfo.h PrivateHeaders 11/12/02, 5:30
IBDocumentManager.h PrivateHeaders 11/12/02, 5:30
IBDocumentManager.h PrivateHeaders 4/28/03, 8:21 PM
IBDocumentManager.h PrivateHeaders 9/3/01, 4:02 AM
IBImportDocumentManager.h PrivateHeaders 4/28/03, 8:21 PM
IBImportDocumentManager.h PrivateHeaders 9/3/01, 4:02 AM
IBImportDocumentManager.h PrivateHeaders 11/12/02, 5:30
Scott
Documents


Font Book
roman
Collection
All Fonts
Classic
Fixed Width
Fun
Modern
PDF
Web
Font
Times
Regular
Times New Roman
Italic
Regular
Bold
Bold Italic
ABCDEFGHIJKLM
NOPQRSTUVWXYZ
abcdefghijklm
nopqrstuvwxyz
1234567890
Disable
2 of 50 Fonts
Times Regular, 42.0 pt.

AddressBook

Aggregate

book

1 of 15 selected

Groups & Files

- AddressBook
- Targets
- Executables
- Errors and Warnings
- Implementation File
- NIB Files
- Find Results
- Project Symbols

| File Name | Code |
|---|---|
| ABAddressBook.h | |
| ABAddressBook.m | |
| ABAddressBook_MailRecent.m | |
| ABAddressBook_Private.h | |
| ABAddressBookC.h | |
| ABAddressBookC.m | |
| Address Book.app | |
| AddressBook.exp | |
| AddressBook.framework | |
| AddressBook.framework | |
| AddressBook.h | |
| AddressBook.icns | |
| AddressBookUI.h | |
| libAddressBook.a | |
| libAddressBook.exp | |

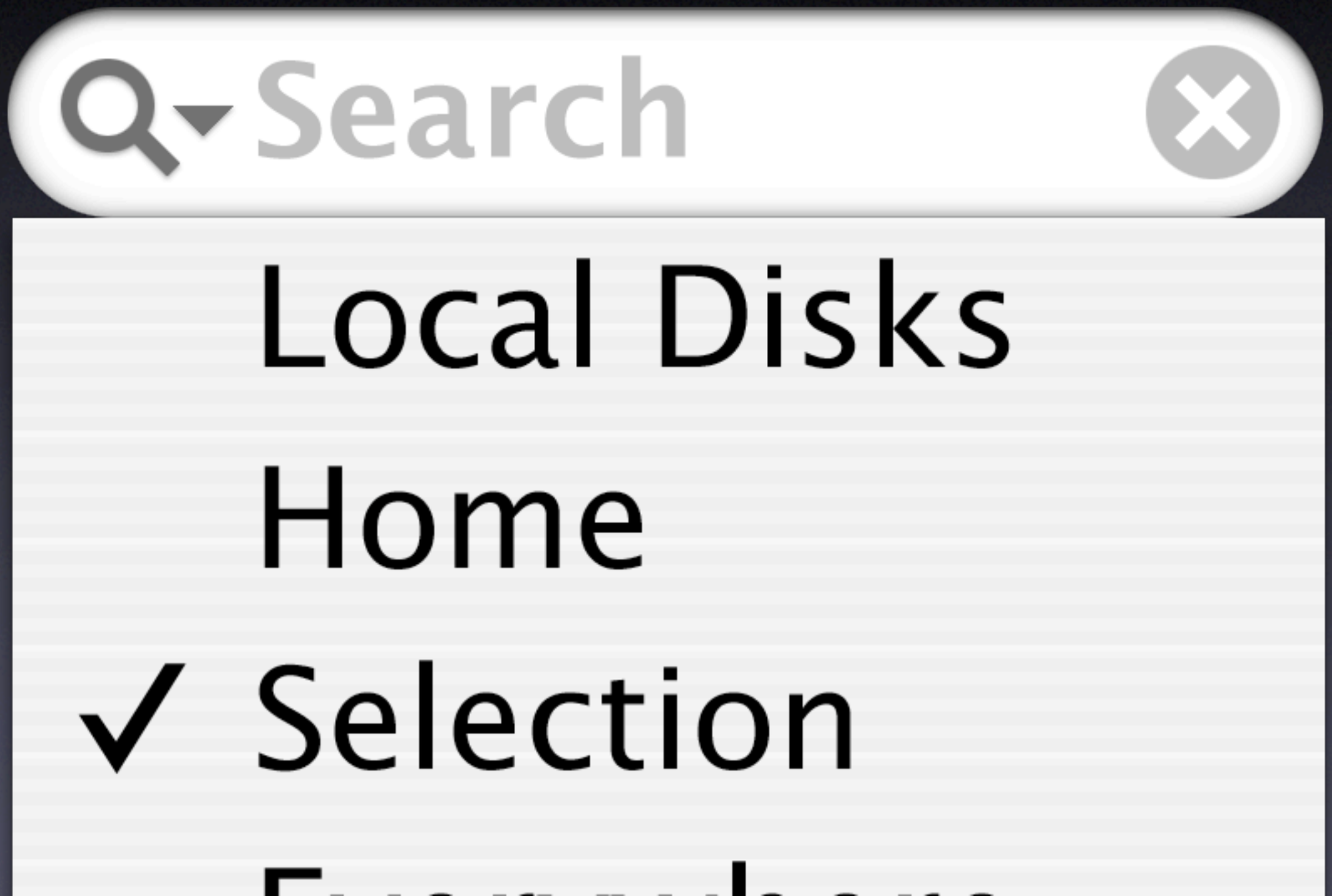
ABAddressBook.h:1 <No selected symbol>

```
//
//  ABAddressBook.h
//  AddressBook Framework
//
//  Copyright (c) 2002-2003 Apple Computer. All rights reserved.
//

#import <AddressBook/ABTypedefs.h>
#import <AddressBook/ABGlobals.h>

@class ABRecord;
@class ABPerson;
@class ABGroup;
@class ABSearchElement;
@class ABConverter;

// ============================================================
//      OpenURL support
```

# Help in Two Ways

# Provide the UI

# Provide the UI



# Provide the UI

# Provide the Search Engine

Search

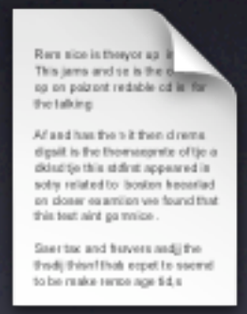
Hi!
I'm Search Kit

# Search Kit Clients

# Search Kit

- Evolution of VTwin
- Supported searches
  - Prefix
  - Boolean
  - Natural language
  - Similar documents
- Unicode-based

# Search Kit Supported Docs



TEXT

RTF

RTFD

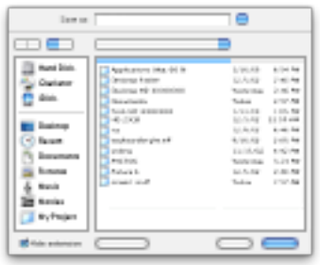
HTML

PDF

Word

# Aqua

New Releases More

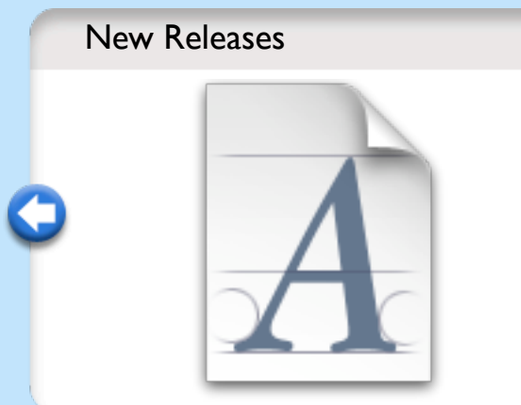


New Releases More

New Releases More

プログラムで
製品計画から
販売する
作業で必要な情報
サービスを受け
Министерство
энергетики США
официально попросило
нас оценить
экологическое
чернобыльской аварии
1986 года на
население диких
ever. With extensive
version of Mac OS X,
attendee — WWDC

# Text



# Text Input

- Simplified UI

A
あ
ア
A

# Text Input

- Simplified UI

# Text Input

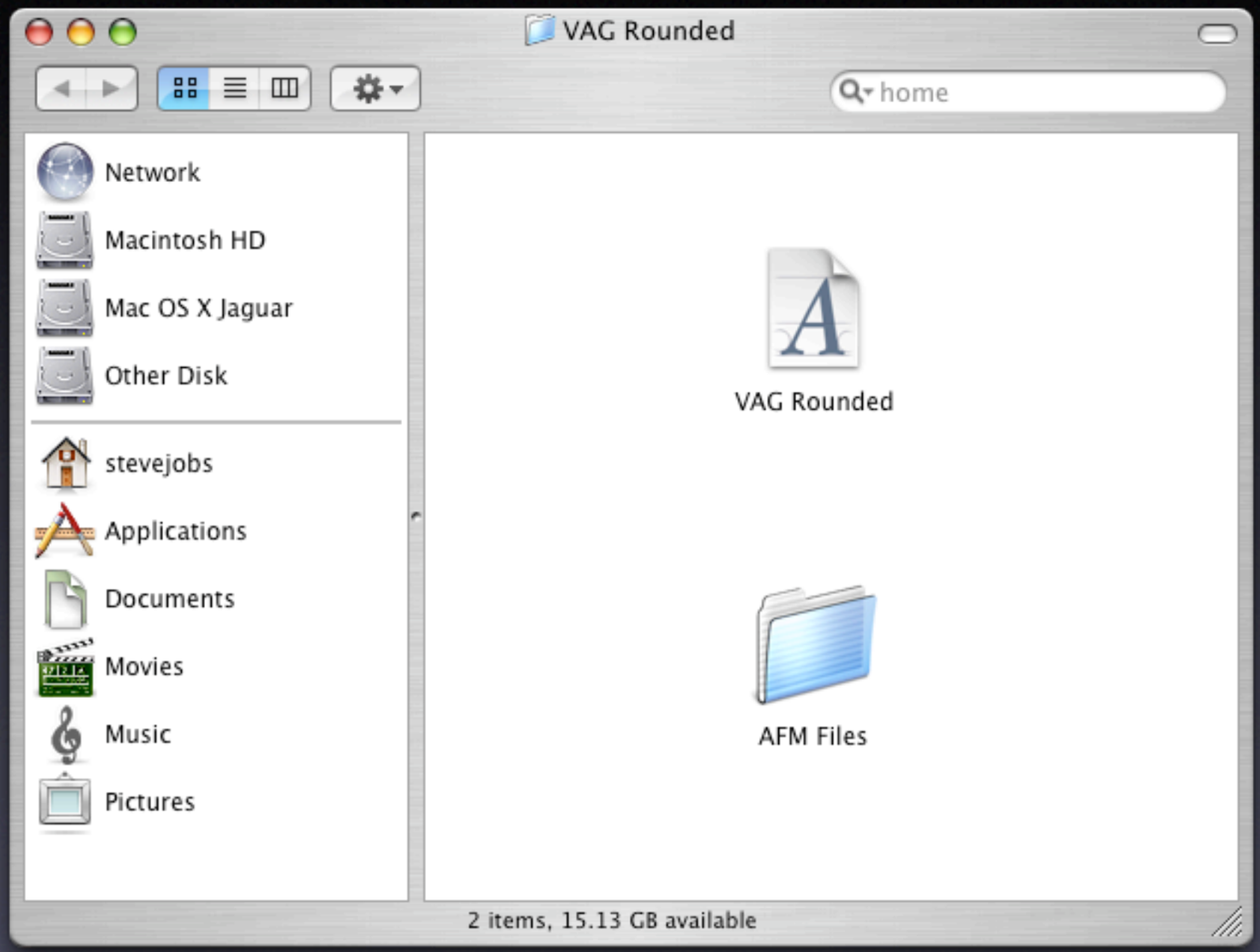
- Simplified UI
- Improved accuracy
  - Latent Semantic Mapping
  - TSM protocol to use document context

# Text Input

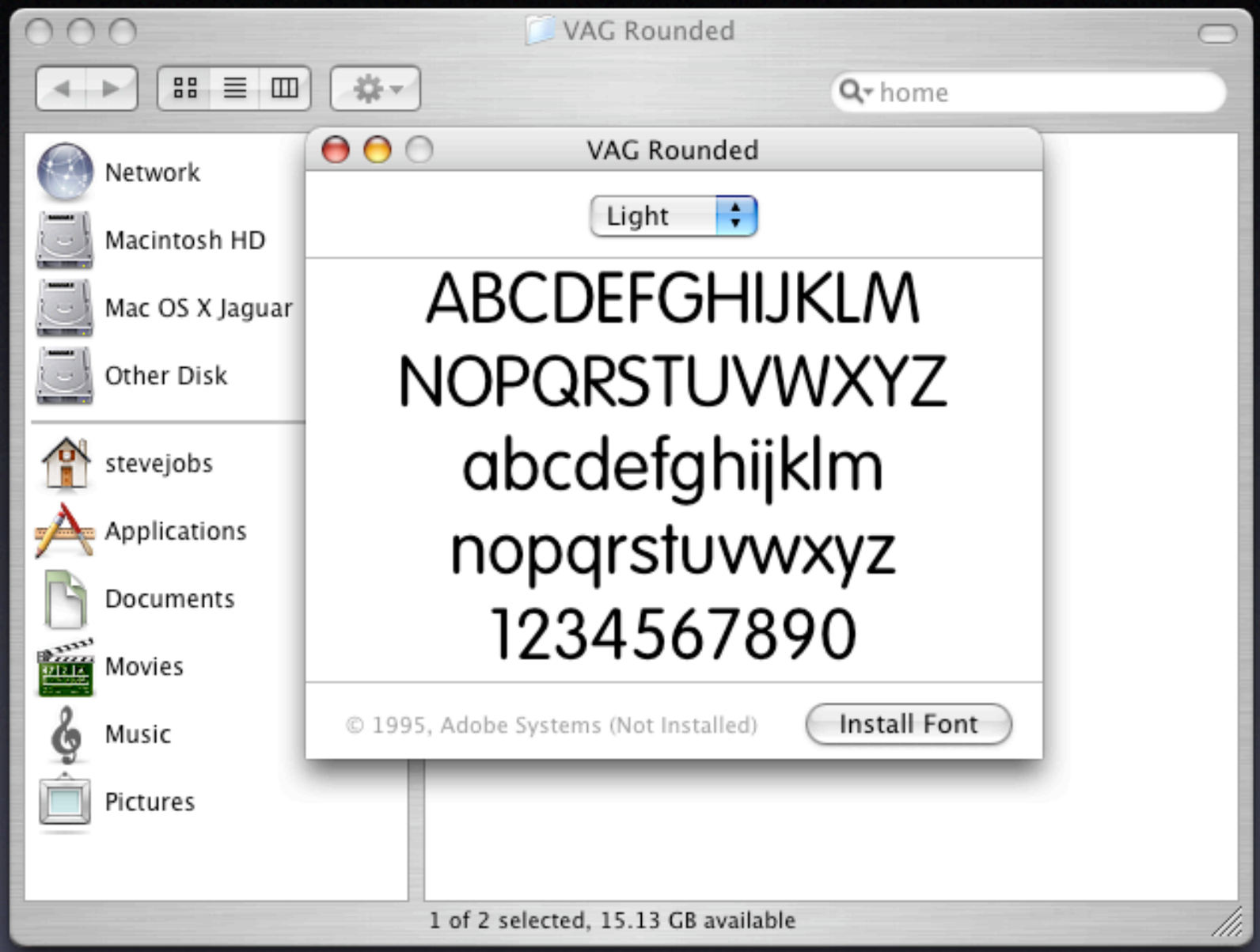
- Simplified UI
- Improved accuracy
  - Latent Semantic Mapping
  - TSM protocol to use document context
- Preference to emulate Microsoft input method

# Font Support

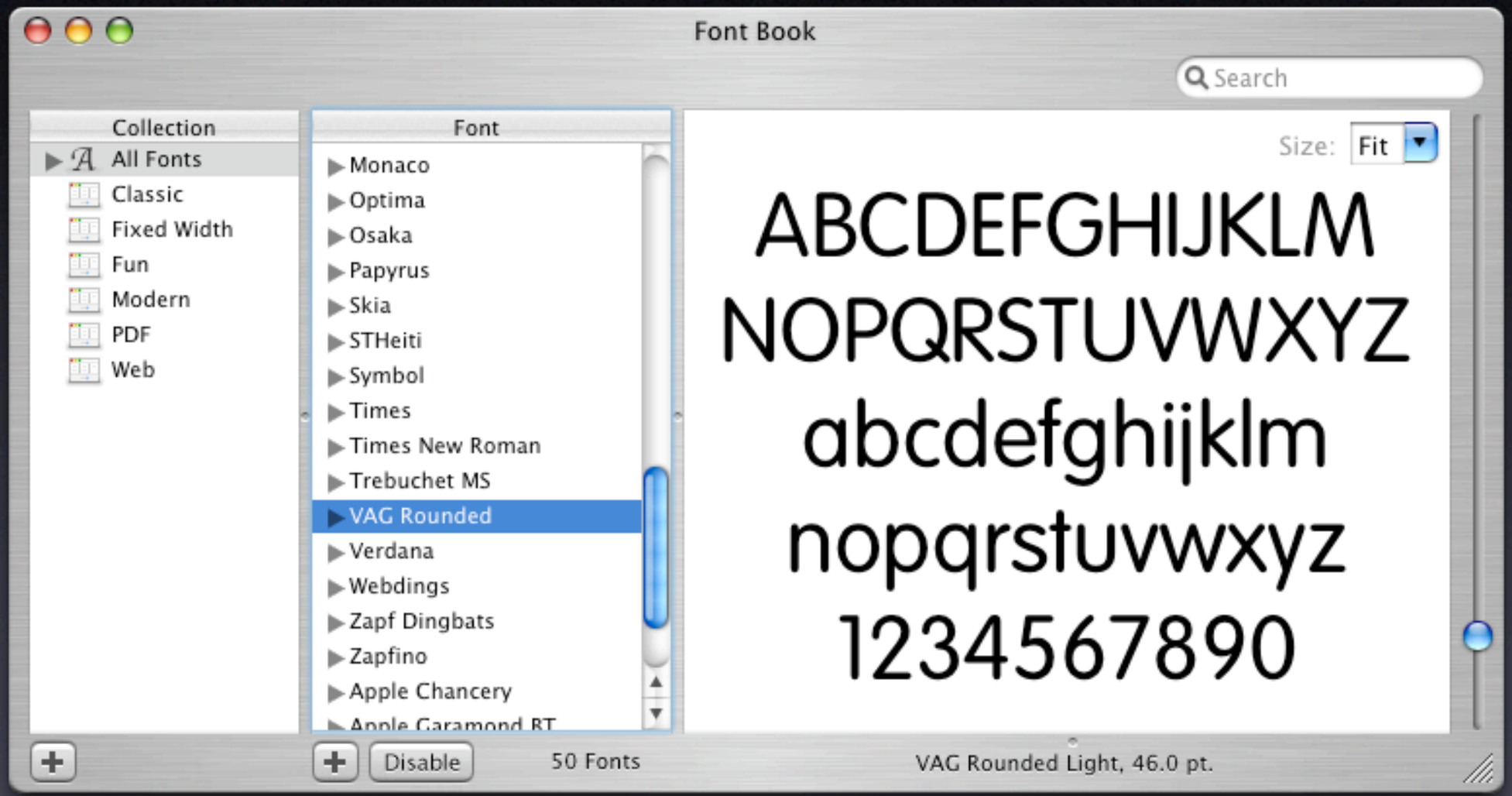
# Installation



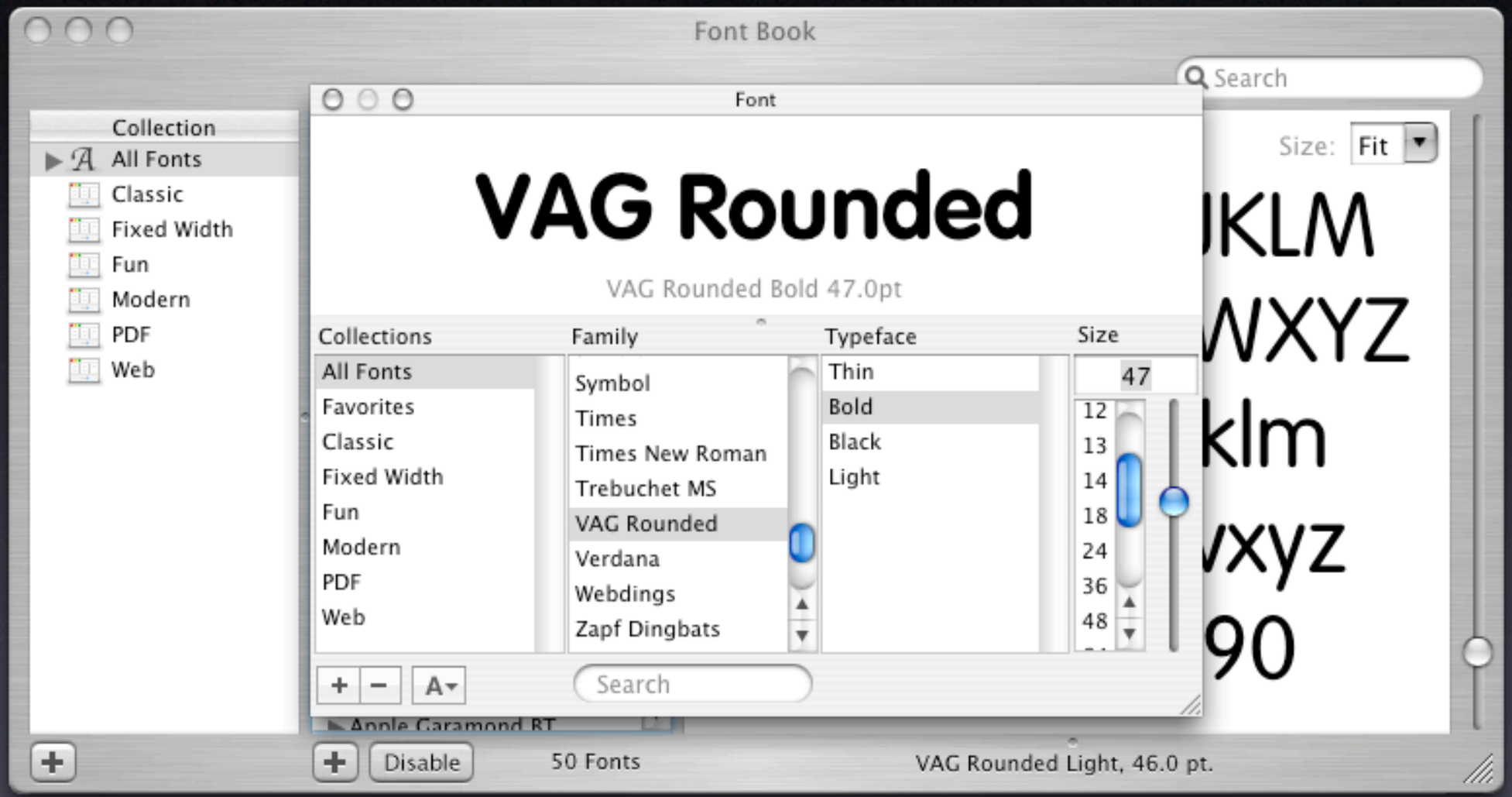
# Installation



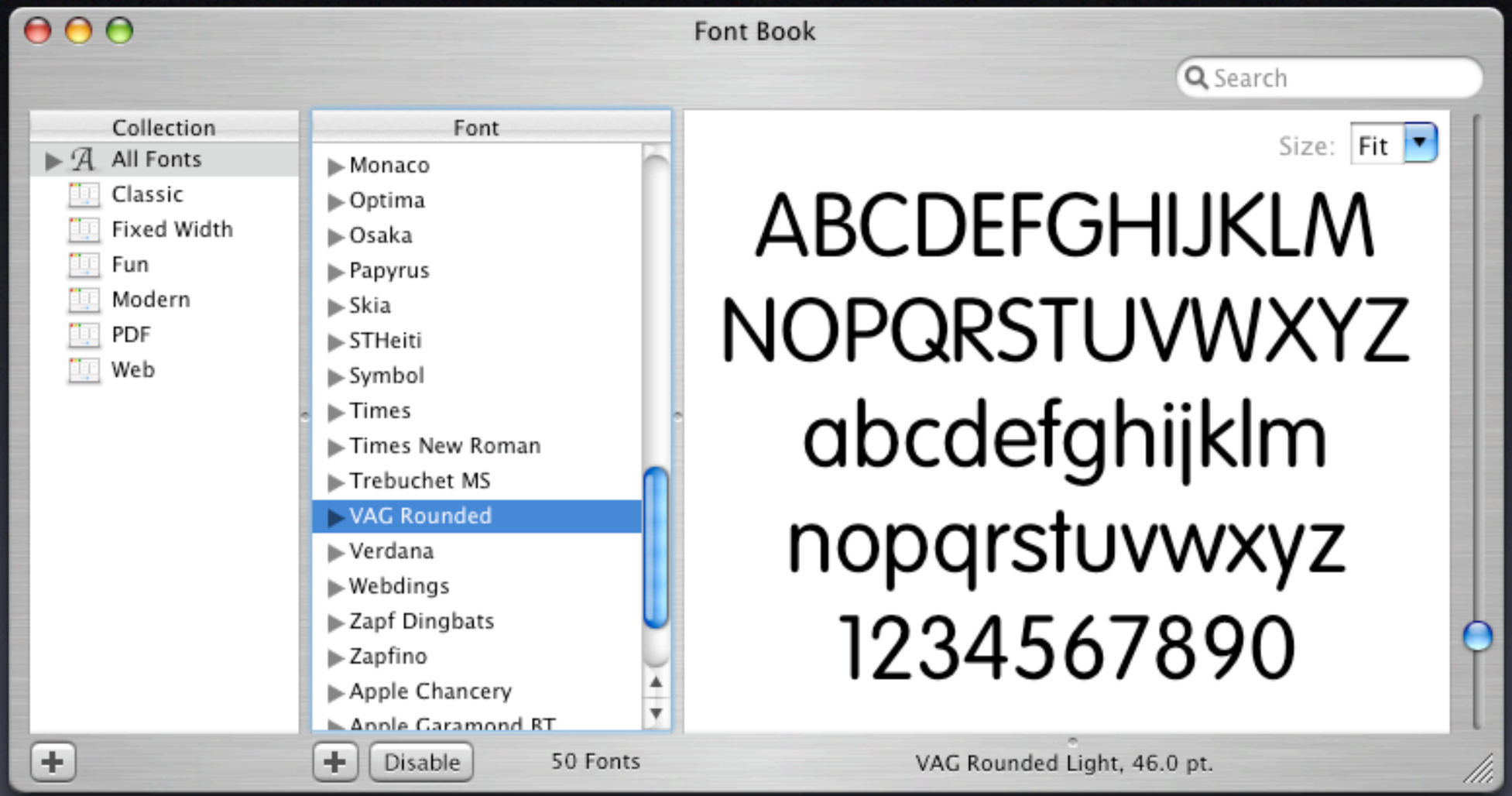
# Installation



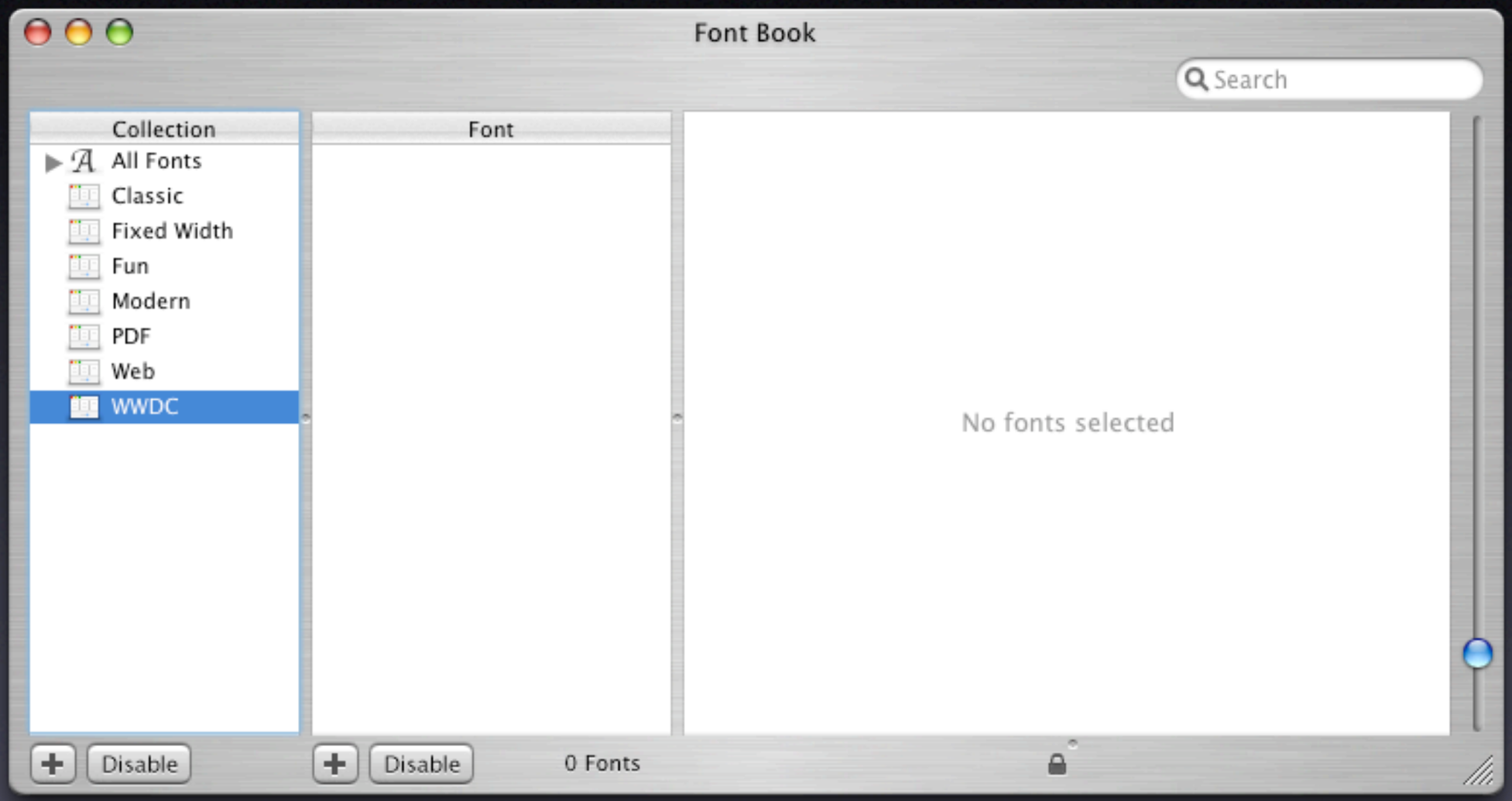
# Access


Font Book
Search
Collection
All Fonts
Classic
Fixed Width
Fun
Modern
PDF
Web
Font
VAG Rounded
VAG Rounded Bold 47.0pt
Collections
Family
Typeface
Size
All Fonts
Favorites
Classic
Fixed Width
Fun
Modern
PDF
Web
Symbol
Times
Times New Roman
Trebuchet MS
VAG Rounded
Verdana
Webdings
Zapf Dingbats
Thin
Bold
Black
Light
47
12
13
14
18
24
36
48
Search
Size:
Fit
JKLM
WXYZ
klm
vxyz
90
Disable
50 Fonts
VAG Rounded Light, 46.0 pt.

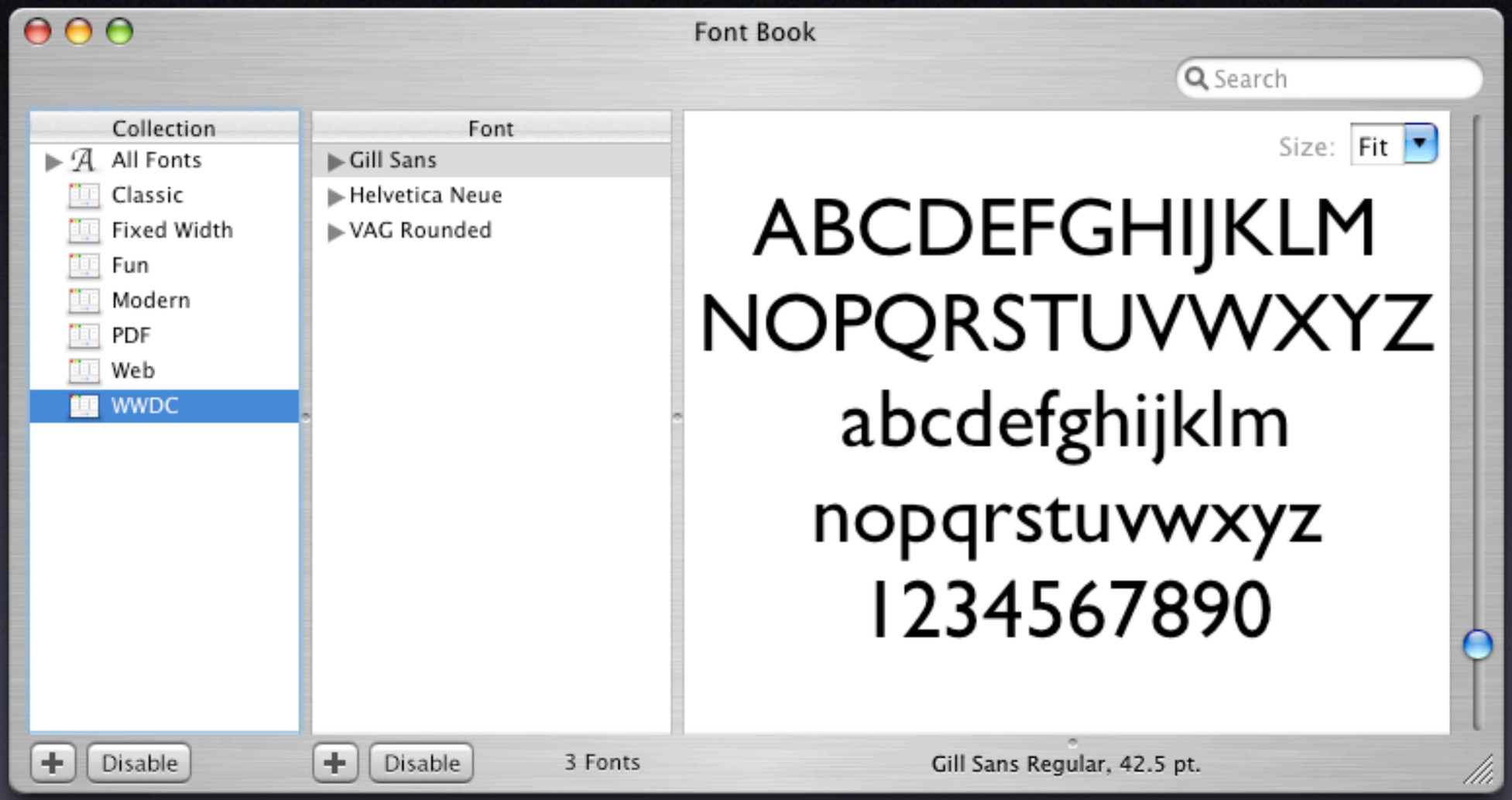
# Organization



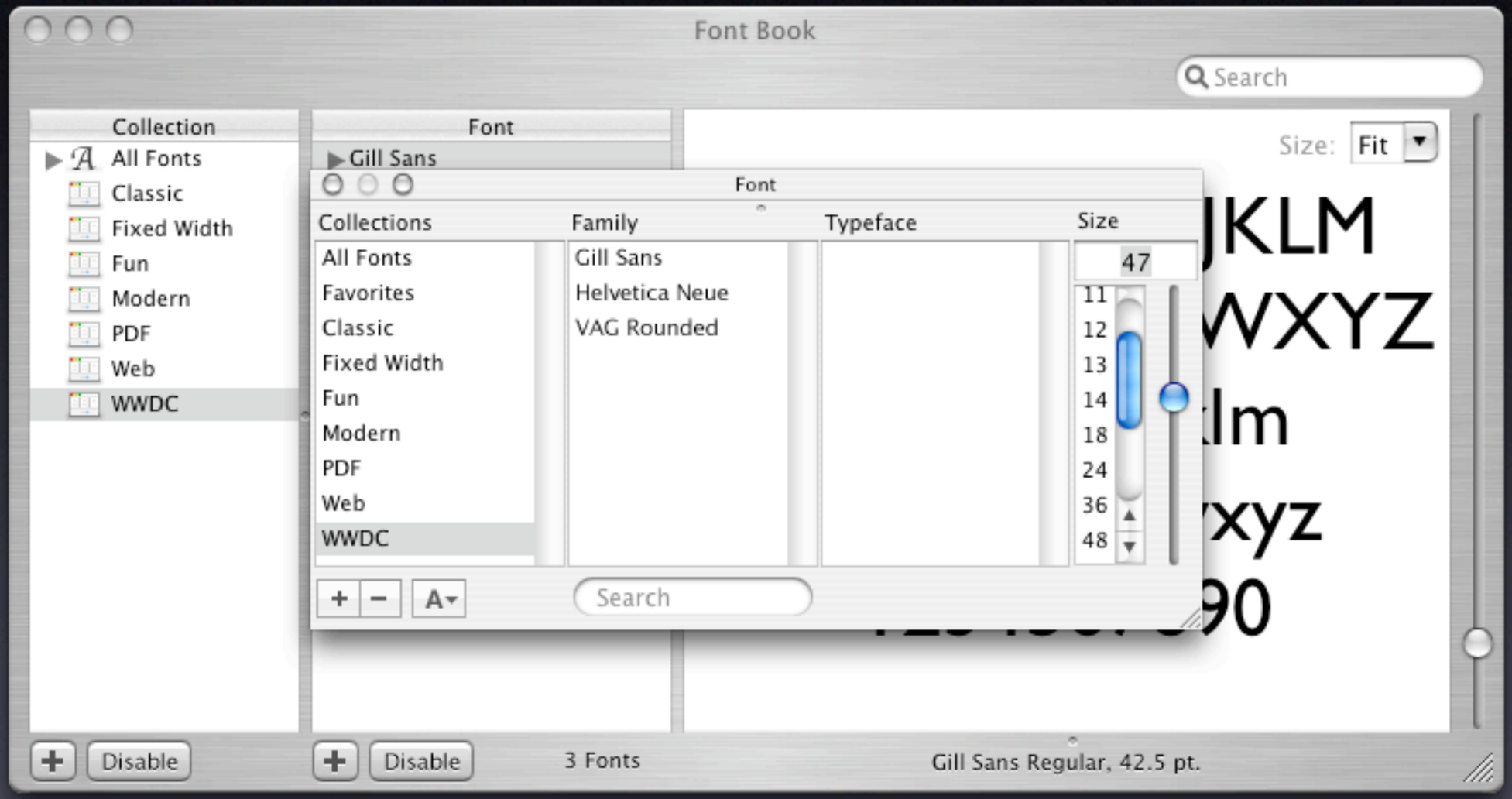
# Organization



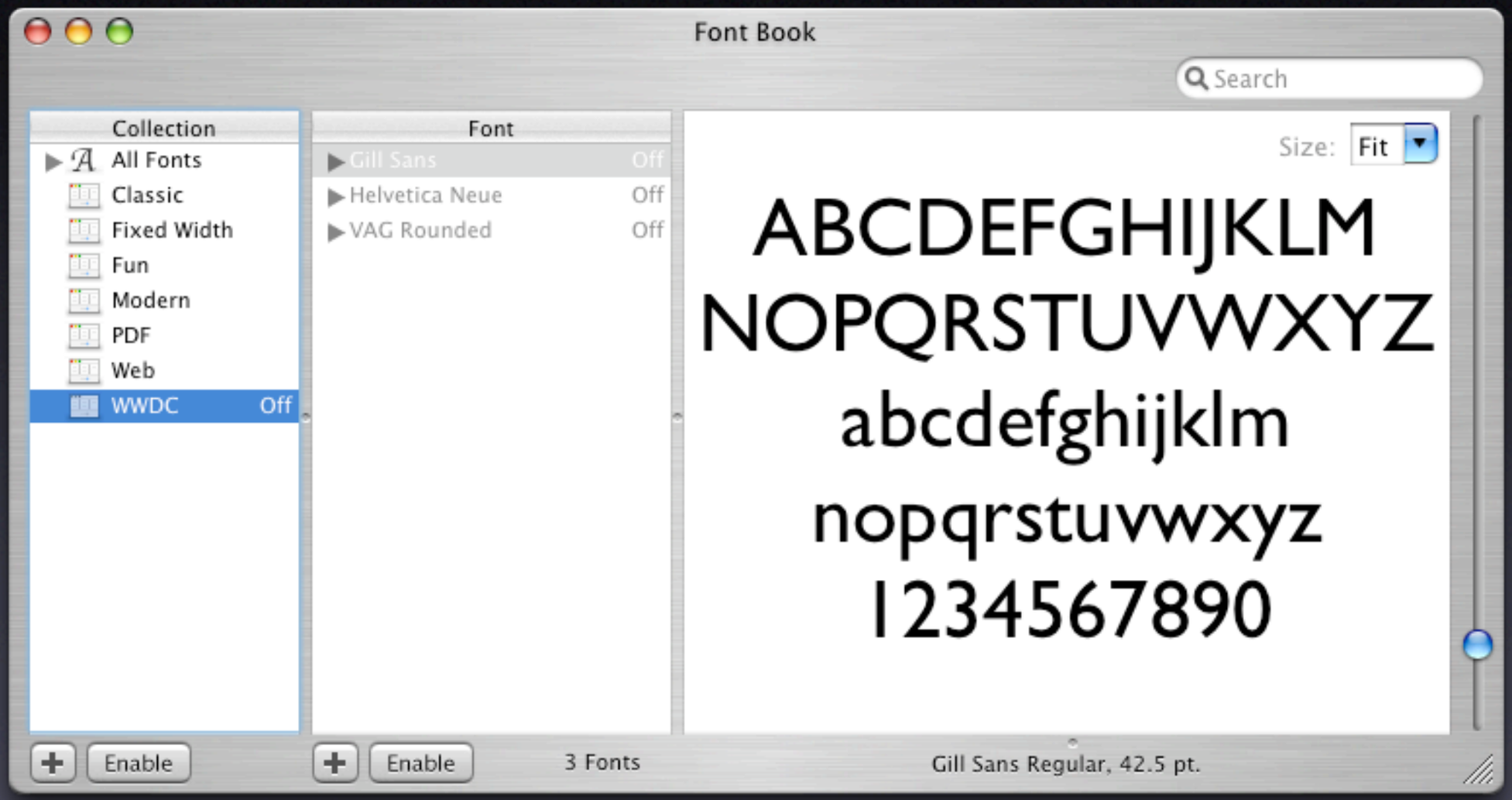
# Organization



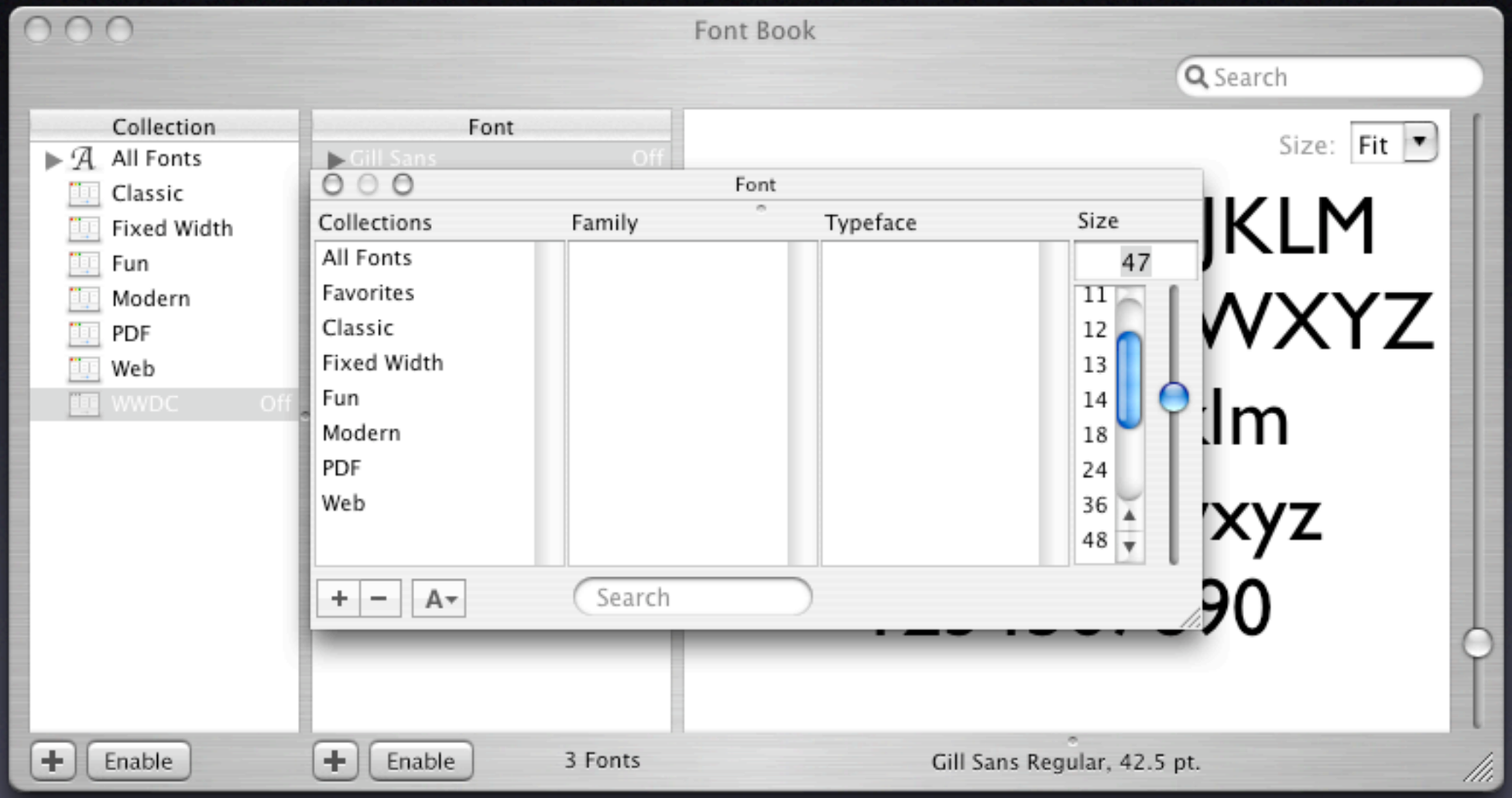
# Access


Font Book
Search
Collection
All Fonts
Classic
Fixed Width
Fun
Modern
PDF
Web
WWDC
Font
Gill Sans
Size:
Fit
JKLM
WXYZ
klm
vxyz
90
Font
Collections
Family
Typeface
Size
All Fonts
Favorites
Classic
Fixed Width
Fun
Modern
PDF
Web
WWDC
Gill Sans
Helvetica Neue
VAG Rounded
47
11
12
13
14
18
24
36
48
Search
Disable
Disable
3 Fonts
Gill Sans Regular, 42.5 pt.

# Activation


Font Book
Search
Collection
All Fonts
Classic
Fixed Width
Fun
Modern
PDF
Web
WWDC Off
Font
Gill Sans Off
Helvetica Neue Off
VAG Rounded Off
Size: Fit
ABCDEFGHIJKLM
NOPQRSTUVWXYZ
abcdefghijklm
nopqrstuvwxyz
1234567890
Enable
Enable
3 Fonts
Gill Sans Regular, 42.5 pt.

# Access


Font Book
Search
Collection
All Fonts
Classic
Fixed Width
Fun
Modern
PDF
Web
WWDC Off
Font
Gill Sans Off
Size: Fit
JKLM
WXYZ
lm
xyz
90
Font
Collections
Family
Typeface
Size
All Fonts
Favorites
Classic
Fixed Width
Fun
Modern
PDF
Web
47
11
12
13
14
18
24
36
48
Search
Enable
Enable
3 Fonts
Gill Sans Regular, 42.5 pt.

# New Collection APIs

# Text Performance

Address Book File Edit View Card Window Help

MTV.com – Home

http://www.mtv.com/

Google

music videos | radio | photos | contests | charts

Bands

**Evanescence Will Do Anything For Rock**
But they won't do *that*

**New Pics of Ashanti, Christina and Gang Starr**
Check out the new flipbooks in our Photo Hub

**Enter the World of Soul**
Watch videos from Ginuwine, Monica, Floetry and more

- **Browse Bands**
- **Fantasy Music Tycoon**
- **Charts**
- **Tour Date Finder**
- **Buzzworthy**
- **MTV2 Handpicked**
- **More Bands**

Choose a Genre

**Search Bands A-Z**

Browse Bands by Name
# A B C D E F G H I J
K L M N O P Q R S T
V W X Y Z

Browse Bands by Genre:
- **Pop**
- **Rock**
- **Hip-Hop**
- **Soul - R&B**
- **Indie**

Or enter a band name below to search:

Search

Music

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**The Osbourne**
Watch Jack get
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**Vote for an An**
Pick the lovebir
get married on

**Take the Beac**
Peek inside part

- **On-Air Sched**
- **Photo Flipbo**
- **Casting Call**

- MC Battle
- Meet The VJs
- Movie Awards 2003

- **View Top 50 Overall**

In

Delete | Reply | Forward | New | Junk | Get Mail | From | Search

| From | Subject | Date Received |
|---|---|---|
| imran | lunch? | January 15, 2003 |
| Chris Guest | Greetings | January 18, 2003 |
| Bas Ording | Waiting for Guffman | January 18, 2003 |
| Edward Van Halen | Need a singer | January 18, 2003 |
| Kay Lemay | summer plans | January 18, 2003 |
| Greg Christie | Polaroids | January 19, 2003 |
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| Gus Grissum | Polar Bears | January 19, 2003 |
| Eric Cartman | CD's | January 19, 2003 |
| Bob Ross | Nuts | January 19, 2003 |
| Doug McKenzie | Elections... | January 19, 2003 |
| | rtoon | January 19, 2003 |
| | n | January 19, 2003 |
| | e Hat | January 19, 2003 |
| | Shoes... | January 19, 2003 |

the summer school section.

Address Book

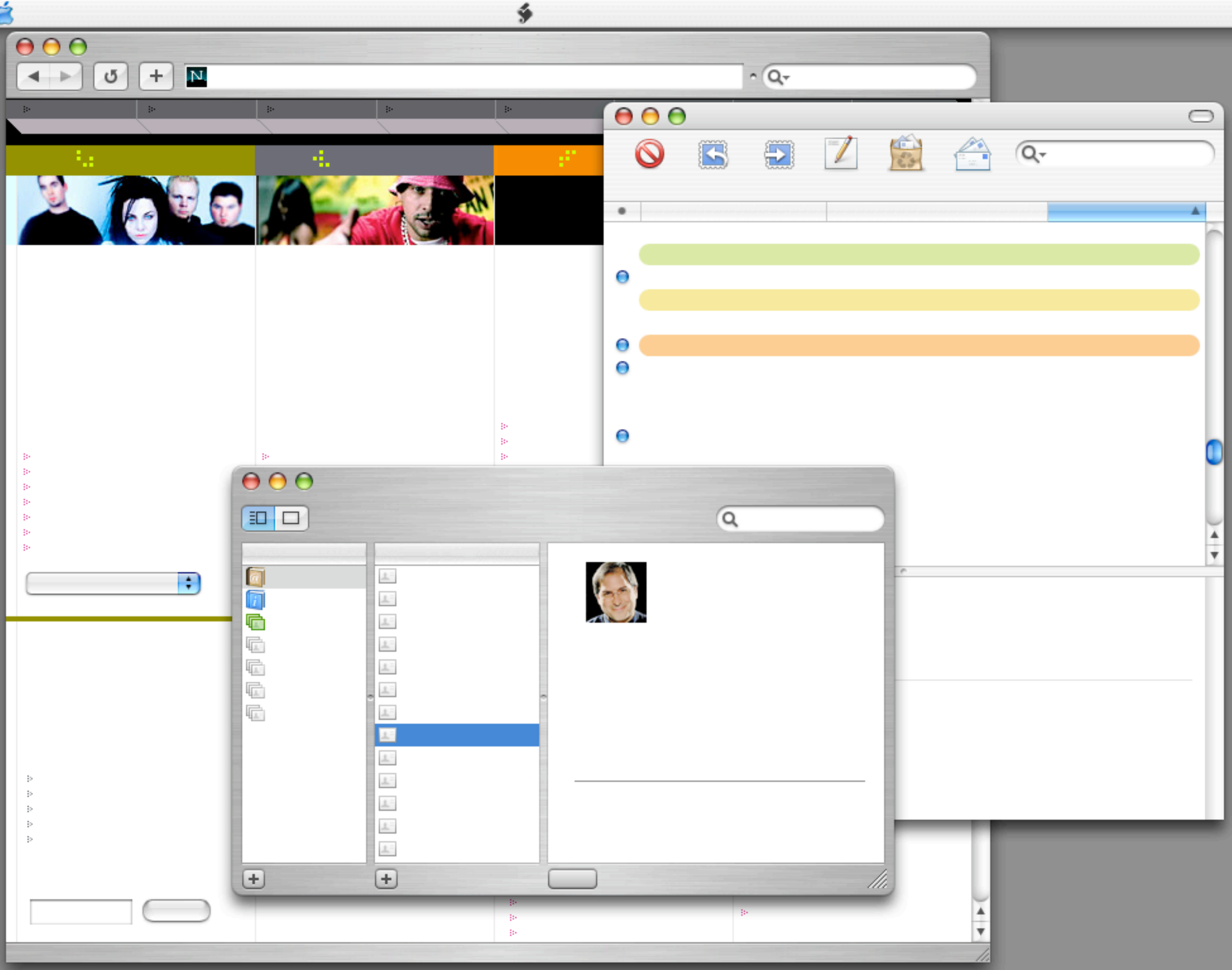
| Group | Name |
|---|---|
| All | Fred Anderson |
| Directory | Bobby Brown |
| Last Import | Tim Cook |
| Babysitters | Greg Christie |
| Bowling Team | Sammy Hagar |
| Exec Team | Nancy Hienen |
| Restaurants | Harry Houdini |
| | Steve Jobs |
| | Ron Johnson |
| | Jon Rubenstein |
| | Phil Schiller |
| | Sina Tamaddon |
| | Avie Tevanian |

**Steve Jobs**
CEO
Apple

work 408-555-1212
work cep@apple.com
home The Steve (AIM)
home 1313 Mockingbird Lane
Hollywood, CA 87176

Note:

Edit 144 cards



Address Book File Edit View Card Window Help

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http://www.mtv.com/

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music videos | radio | photos | contests | charts

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K L M N O P Q R S T
V W X Y Z

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Watch Jack get
his birthday sma

**Vote for an An**
Pick the lovebir
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**Take the Beac**
Peek inside part

- **On-Air Sched**
- **Photo Flipbo**
- **Casting Call**

- MC Battle
- Meet The VJs
- Movie Awards 2003

- **View Top 50 Overall**

In

Delete | Reply | Forward | New | Junk | Get Mail | From | Search

| From | Subject | Date Received |
|---|---|---|
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the summer school section.

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| Restaurants | Harry Houdini |
| | Steve Jobs |
| | Ron Johnson |
| | Jon Rubenstein |
| | Phil Schiller |
| | Sina Tamaddon |
| | Avie Tevanian |

**Steve Jobs**
CEO
Apple

work 408-555-1212
work cep@apple.com
home The Steve (AIM)
home 1313 Mockingbird Lane
Hollywood, CA 87176

Note:

Edit 144 cards

Address Book File Edit View Card Window Help

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http://www.mtv.com/

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music videos radio photos contests charts shop trl mtv2 fn

## Bands

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But they won't do *that*

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**Charts**
**Tour Date Finder**
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**Indie**

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It's time to update your music library

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| | Steve Jobs |
| | Ron Johnson |
| | Jon Rubenstein |
| | Phil Schiller |
| | Sina Tamaddon |
| | Avie Tevanian |

## On-Air

**The Osbourne:**
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his birthday sma

**Vote for an An**
Pick the lovebirc
get married on

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Peek inside part

**On-Air Sched**
**Photo Flipbo**
**Casting Call**

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Edit 144 cards

MC Battle
Meet The VJs
Movie Awards 2003

**View Top 50 Overall**

Delete Reply Forward New Junk Get Mail

From

Search

| From | Subject | Date Received |
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| | rtoon | January 19, 2003 |
| | n | January 19, 2003 |
| | e Hat | January 19, 2003 |
| | Shoes... | January 19, 2003 |

## Steve Jobs

CEO
Apple

| | |
|---|---|
| work | 408-555-1212 |
| work | cep@apple.com |
| home | The Steve (AIM) |
| home | 1313 Mockingbird Lane<br>Hollywood, CA 87176 |

Note:

the summer school section.

# Font System

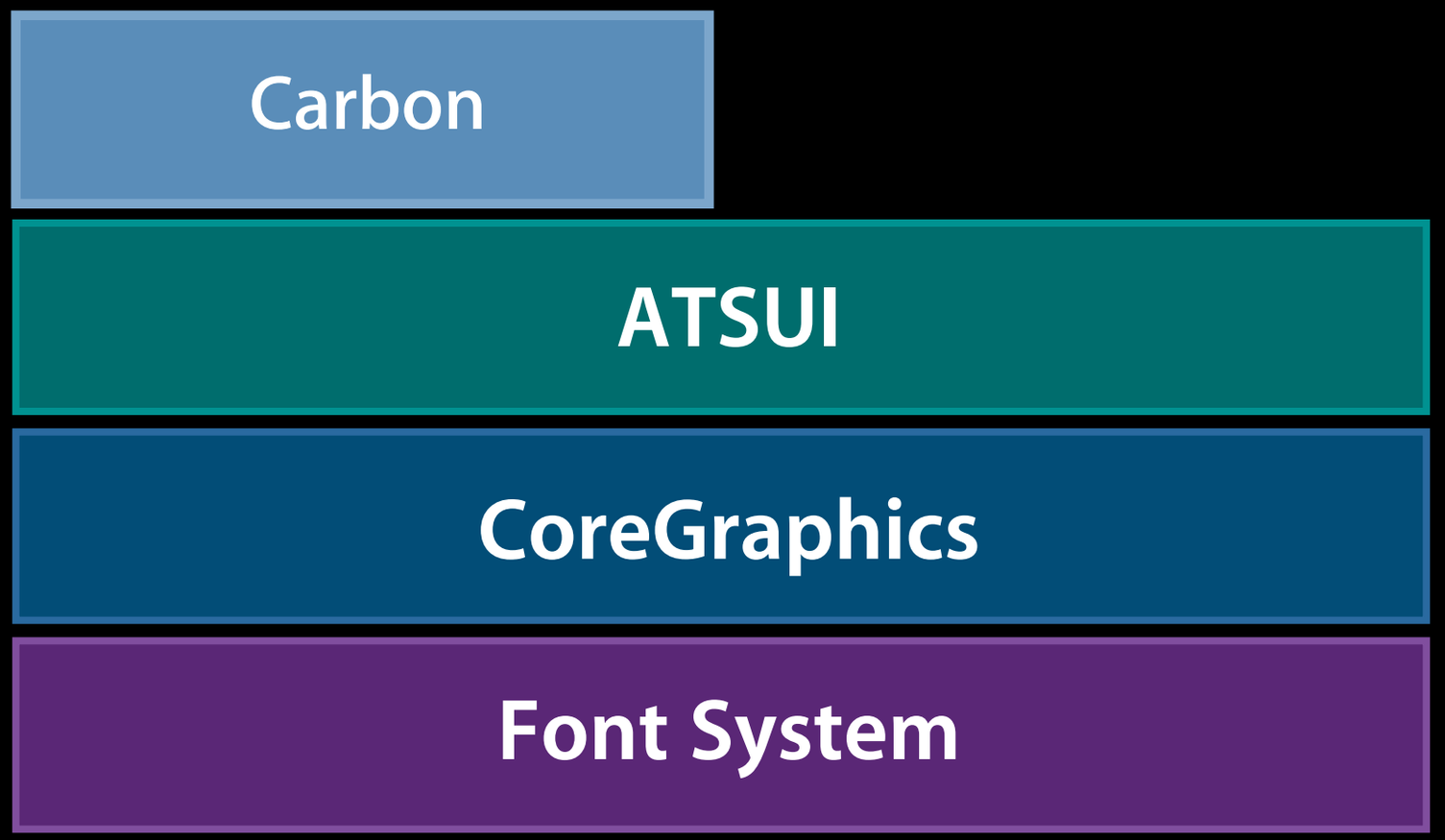
CoreGraphics

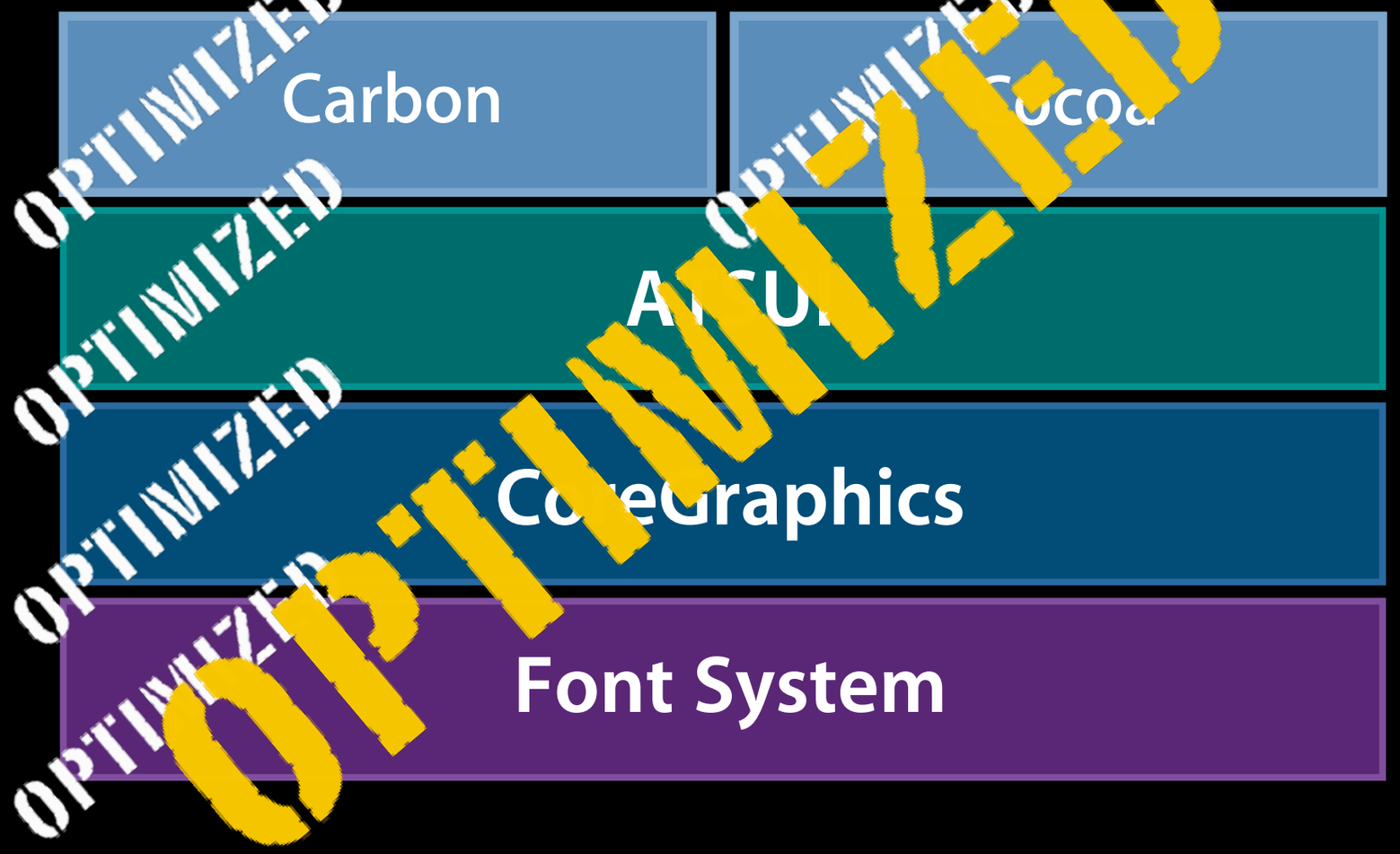
Font System

ATSUI

CoreGraphics

Font System


Carbon
ATSUI
CoreGraphics
Font System


Carbon
Cocoa
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CoreGraphics
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# >2x

不论您是一位程序员，企业信息技术经理，系统管理员，最新一代内容作者，参与本界大会，将让您有机会第一时间探索来自苹果公司的新一代创新技术

は世界各国のデベロッパに対して、ビジネスと秘術情報を提供する会員制プログラムです。[illegible]販売に至るまでの作業で必要な情報やサービスを受けるにはデベロッパプログラムにご加入下さい。一部の特典は必要に応じて単独で購入する

После недавней исследовательской экспедиции в чернобыльскую зону Министерство энергетики СШ официально по[illegible] наступлениить экологическое влияние чернобыльской аварии 1986 года на население диких животных. Мы ответили, что, хотя и трудно сделать количественную оценку, общее экологическое влияние было позитивным.

Apple's Worldwide Developers Conference 2003 will be the biggest ever. With extensive coverage of the next [illegible] of Mac OS X, [illegible]denamed "Panther" — [illegible] as [illegible] as a preview release given to each attendee — WWDC is a don't miss opportunity. Come learn about the future of Mac OS X from the Apple engineers who created it! [May 23 2003]

# Text

プログラムで
製品計画から
販売する
作業で必要な情報
サービスを受け
Министерство
энергетики США
официально попросило
нас оценить
экологическое
чернобыльской аварии
1986 года на
население диких
ever. With extensive
version of Mac OS X,
as well as a preview
attendee — WWDC
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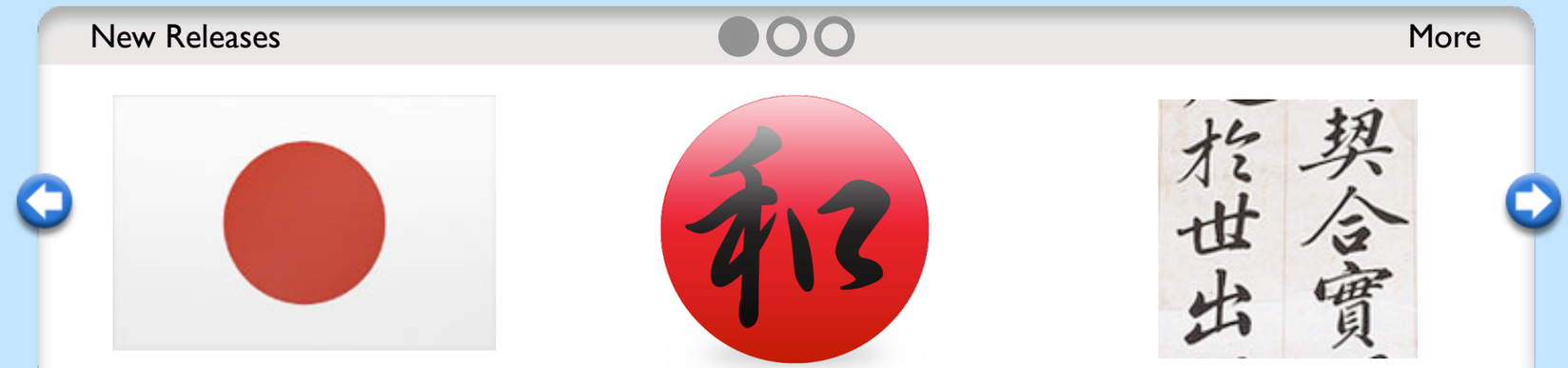
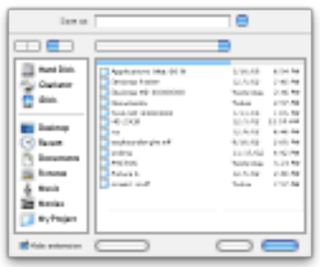


# Carbon

New Releases More



New Releases More

New Releases More

# The Age of HIView

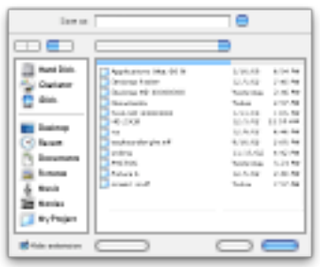
- HIView is the future of HIToolbox
- HITextView
- HIView-based menus
- HIView layouts
  - Springs and rods
  - Complex HIView relationships
  - Much faster

# Faster HIToolbox

- Quartz HITheme APIs
  - Leverage Quartz drawing
  - Much faster
- DataBrowser
  - 25% faster to add items
  - 80% faster to remove items
  - Much faster for large data sets
  - Now supports compositing mode
- Window resizing

# Carbon

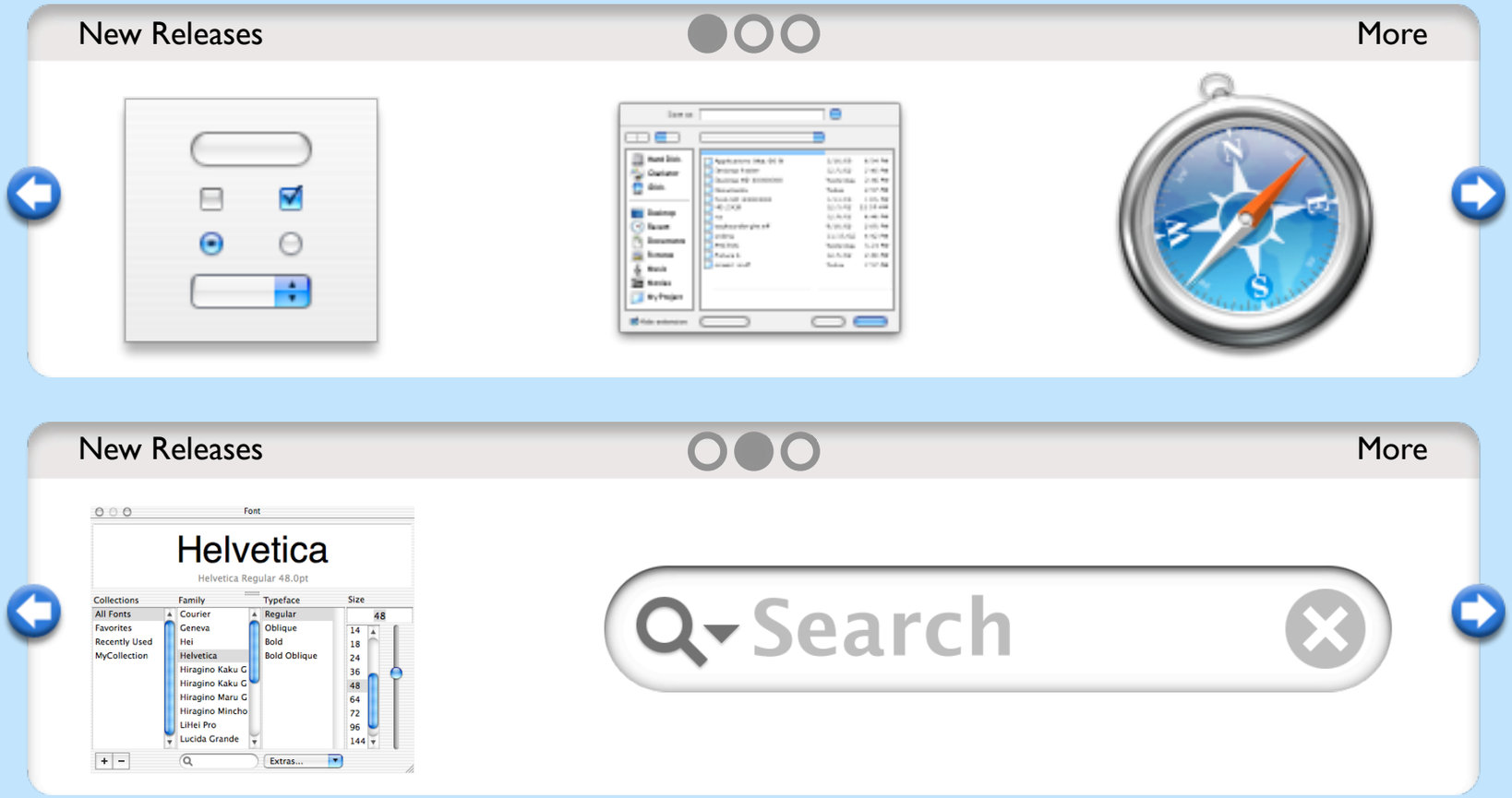
New Releases More



New Releases More

New Releases More

# Cocoa


New Releases
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Helvetica Regular 48.0pt
Collections
Family
Typeface
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Favorites
Recently Used
MyCollection
Courier
Geneva
Hei
Helvetica
Hiragino Kaku G
Hiragino Kaku G
Hiragino Maru G
Hiragino Mincho
LiHei Pro
Lucida Grande
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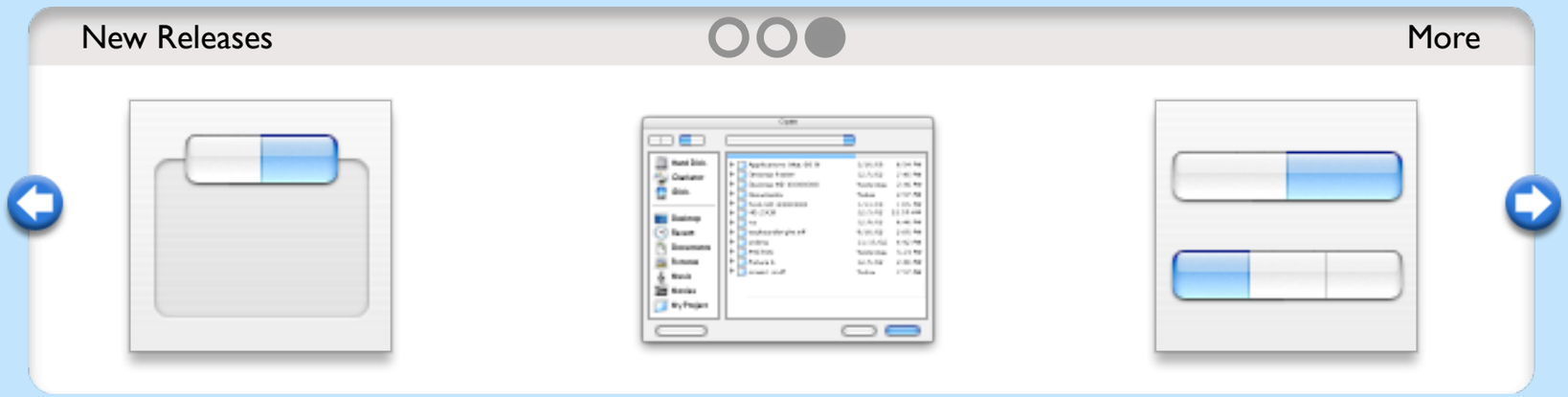
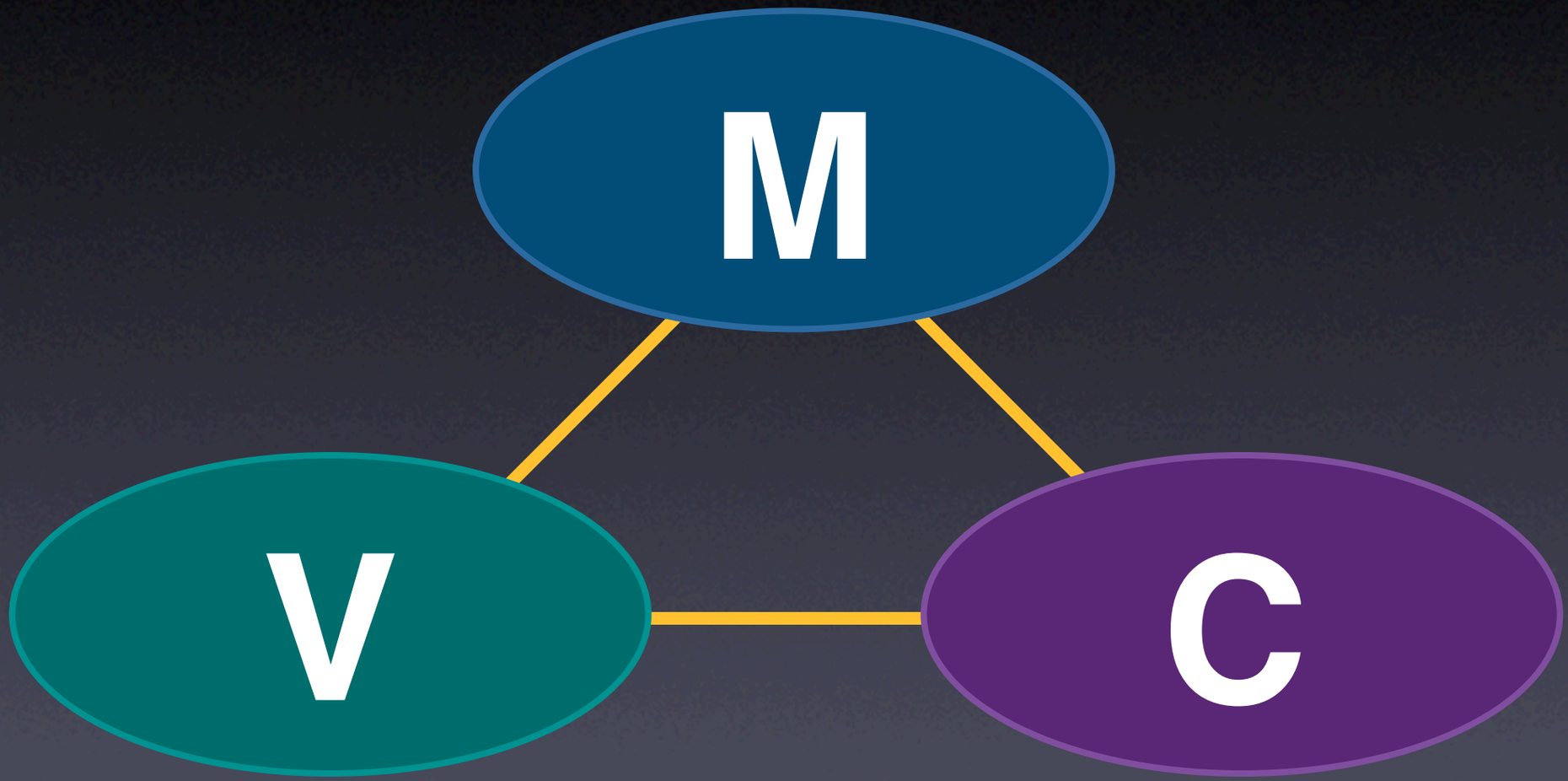
Extras...
Search


New Releases
More

# Model-View-Controller



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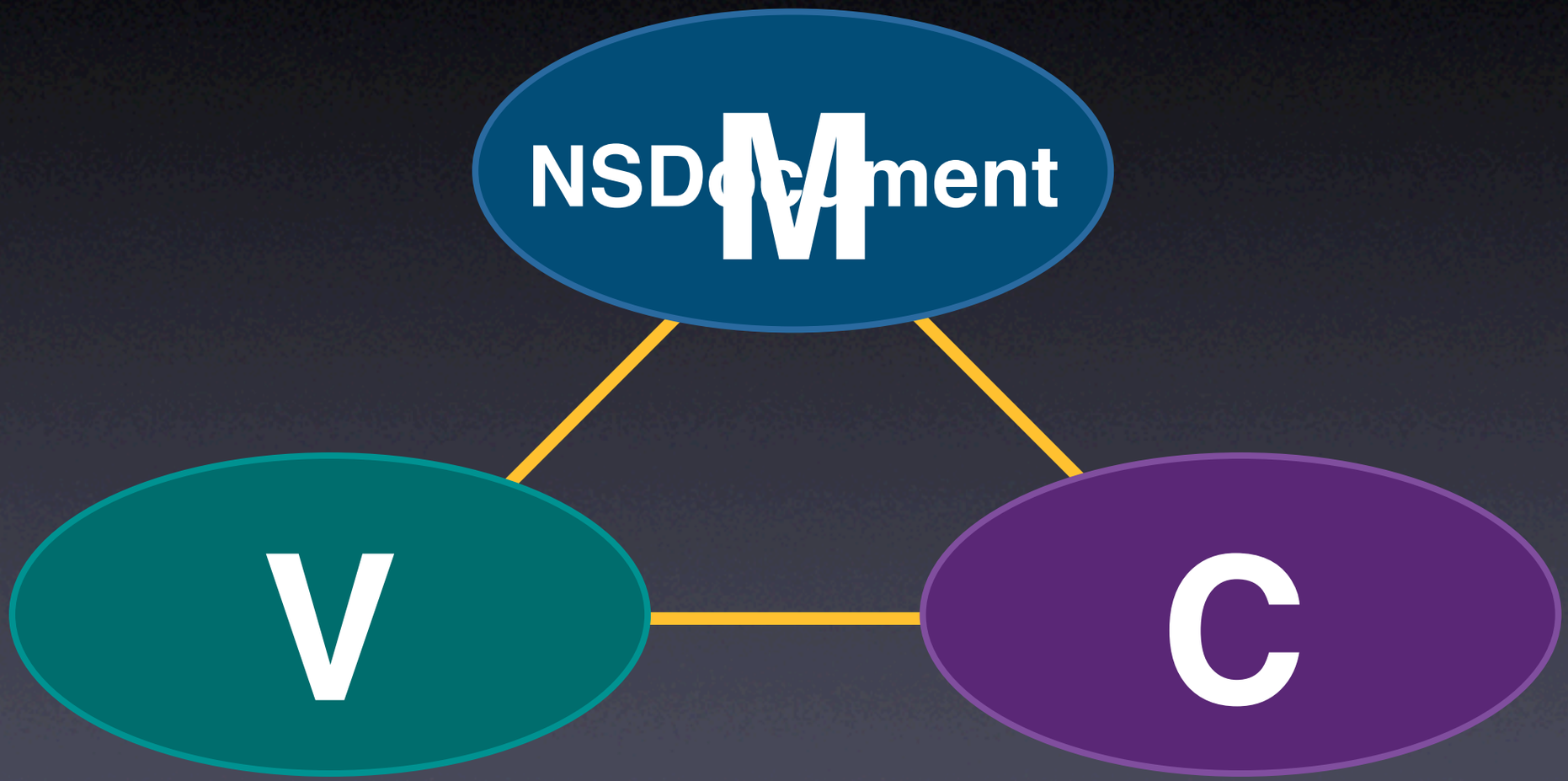
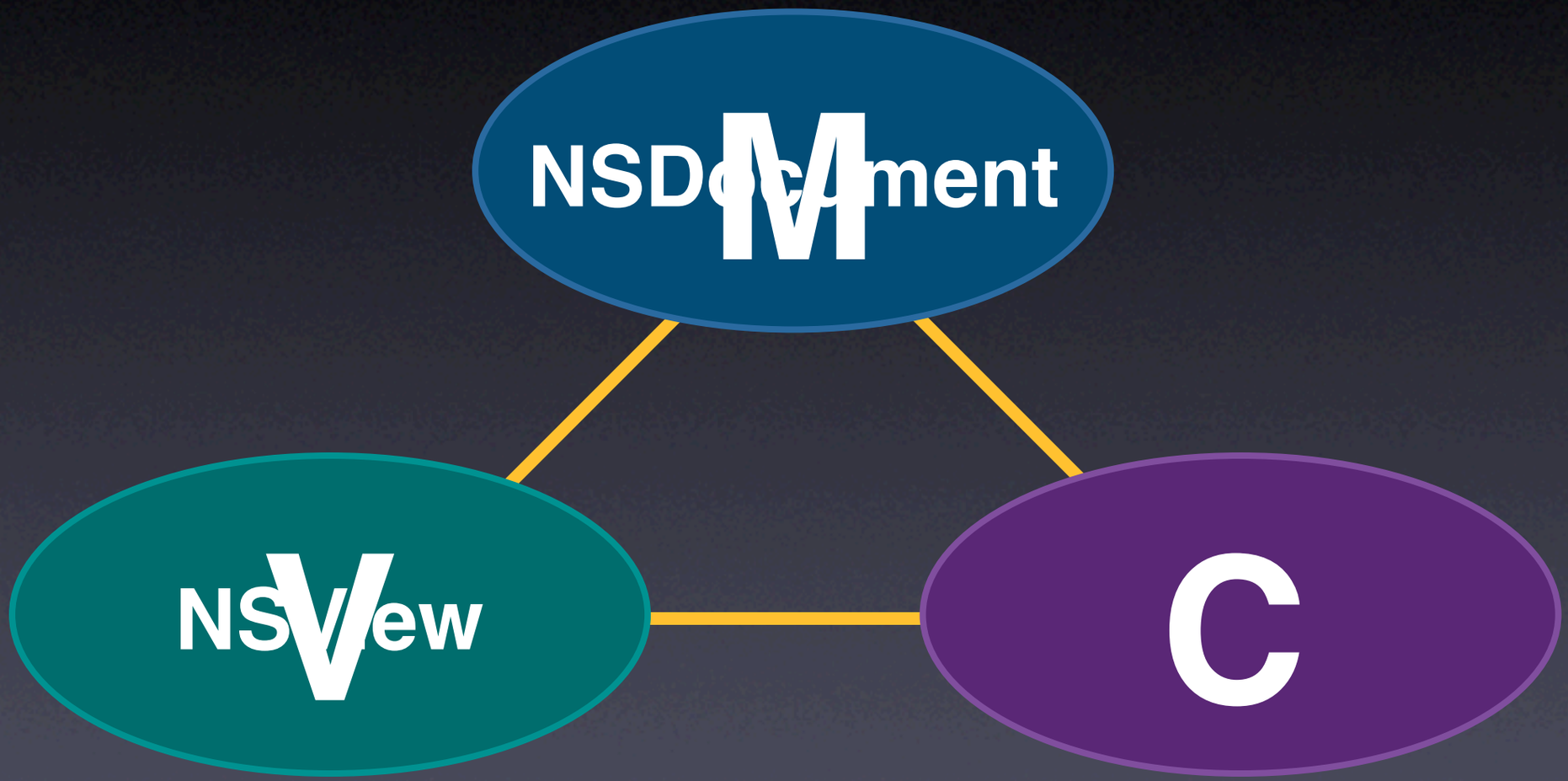
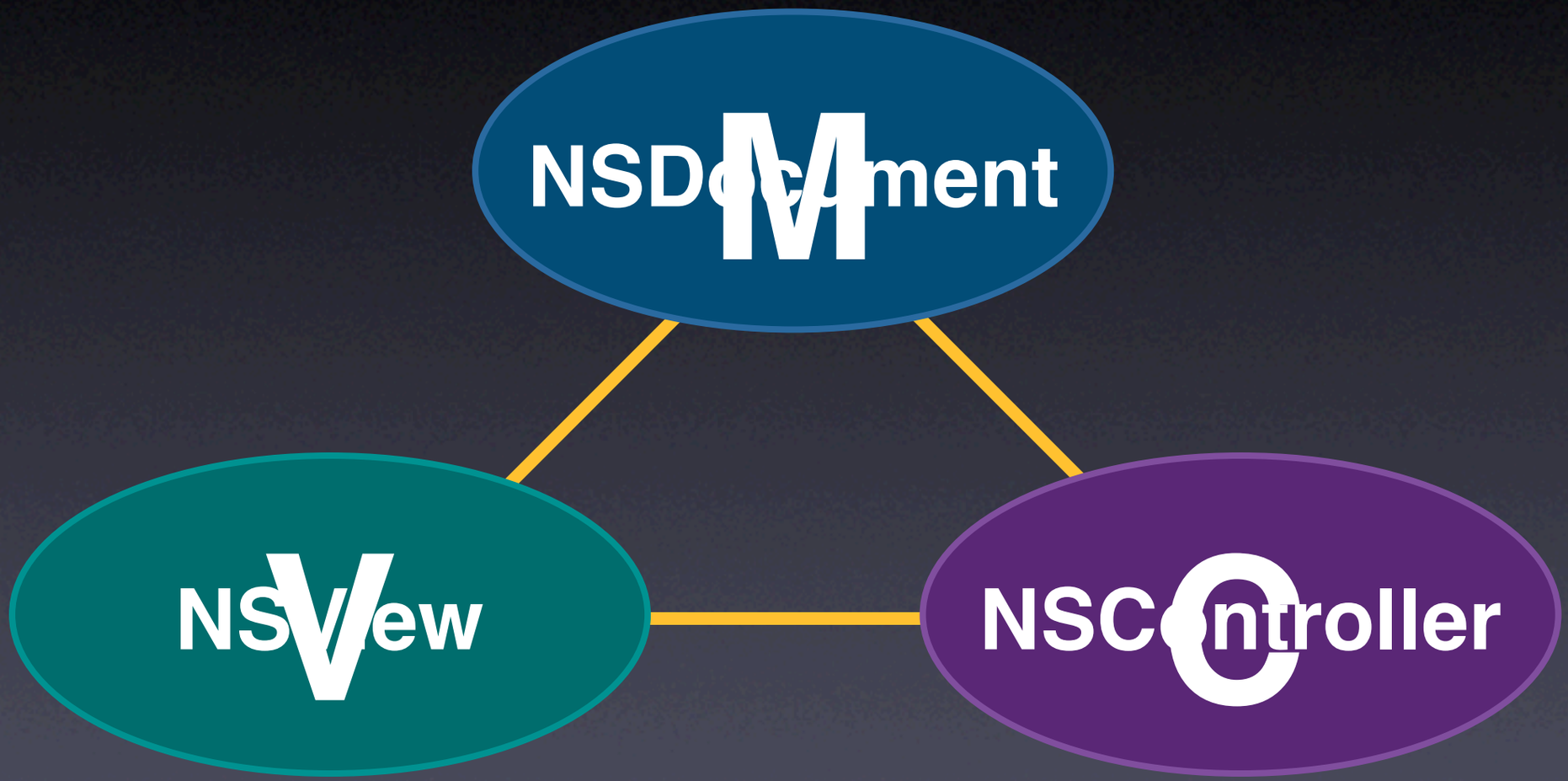


# Model-View-Controller

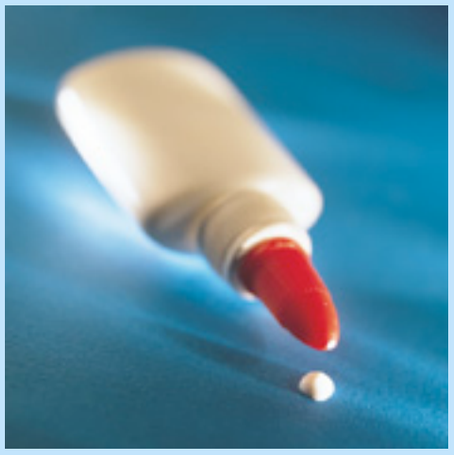


# Model-View-Controller



# Why a Controller Layer?

- Make Mac OS X the most efficient development platform
- Provide standard functionality
- Eliminate redundant code
- Controller layer eliminates entire class of glue code



# UI Glue Be Gone

- Updating model when user changes value in UI
- Reflecting model in UI
- Keeping UI elements in sync
- Updating UI in response to user action

Interface Builder File Edit Classes Format Layout Tools Window Help Mon 5:05 PM

Window

Cities
Cupertino
San Jose
Santa Clara
San Francisco
Palo Alto
San Carlos
Los Gatos
Sunnyvale
Mountain View
Redwood City

Cocoa-BinderPalette

Untitled

Instances | Classes | Images | Sounds | Nib

File's Owner
First Responder
MainMenu
Window
NSArrayContr...

NSTableColumn Info

Bindings

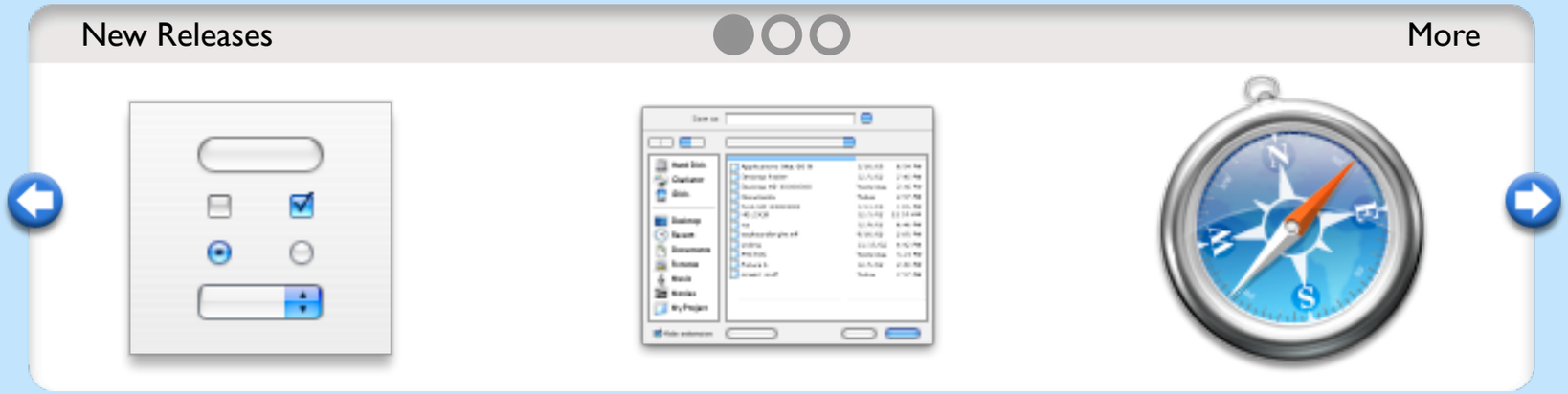
▼ value Bind

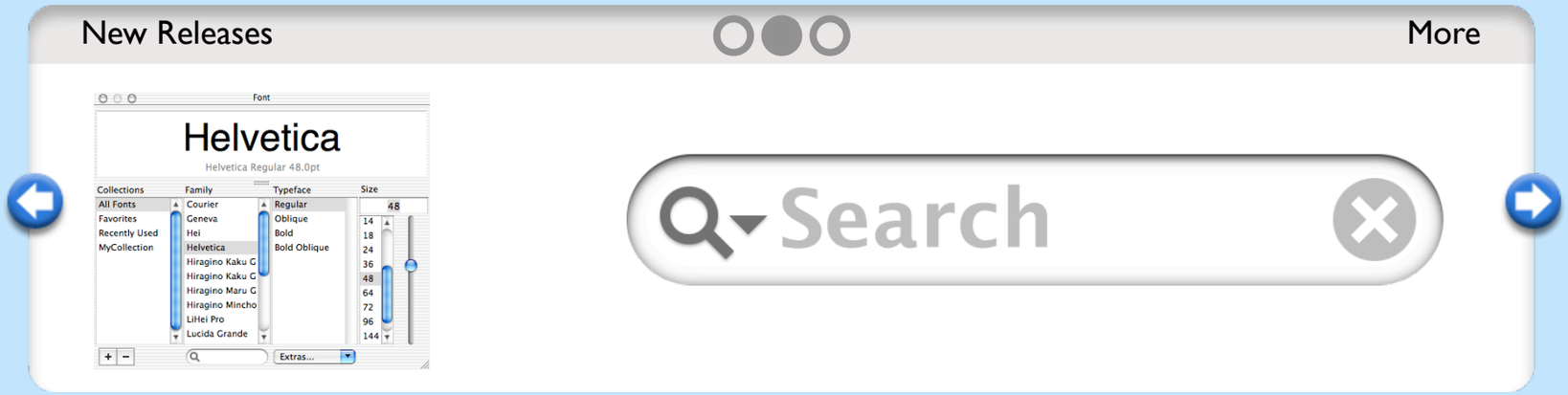
Controller: NSArrayController
Controller Key: arrangedObjects
Model Key: city
Transformer:

Allows Editing Multiple Values Selection
Conditionally Sets Editable
Conditionally Sets Enabled
Raises For Not Applicable Keys
Uses Continuous Change Notification

Multiple Values Placeholder:
No Selection Placeholder:
Not Applicable Placeholder:
Null Placeholder:

# Cocoa


New Releases
More


New Releases
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Helvetica Regular 48.0pt
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Family
Typeface
Size
All Fonts
Favorites
Recently Used
MyCollection
Courier
Geneva
Hei
Helvetica
Hiragino Kaku G
Hiragino Kaku G
Hiragino Maru G
Hiragino Mincho
LiHei Pro
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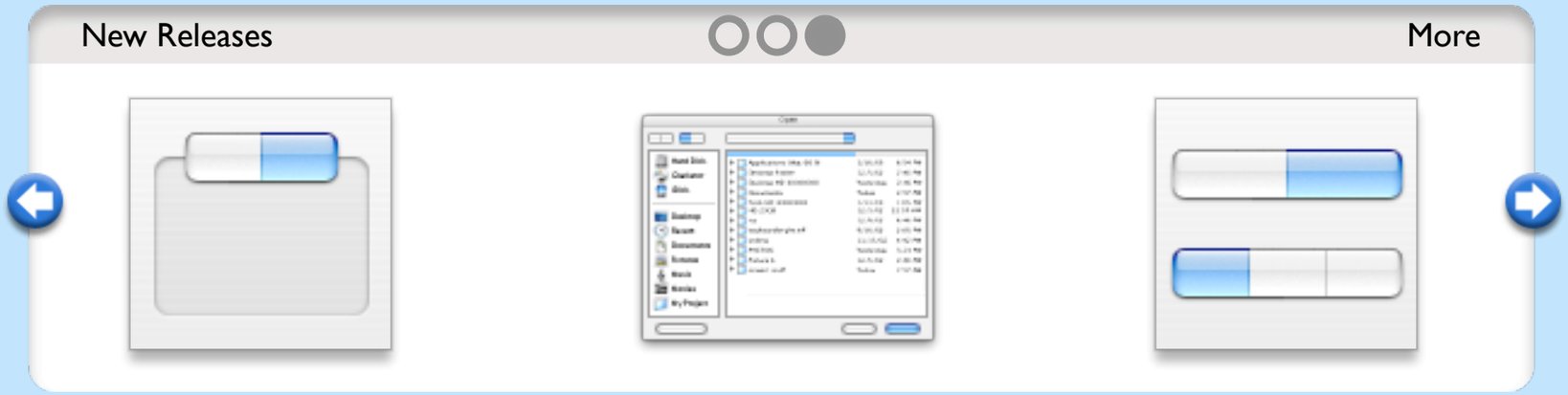

New Releases
More

# Internet

New Releases More

New Releases More

New Releases More

# Sherlock

Sherlock – Movies

Channels | Internet | Pictures | Stocks | Movies | Phone Book | eBay | Flights | Dictionary | Translation | AppleCare

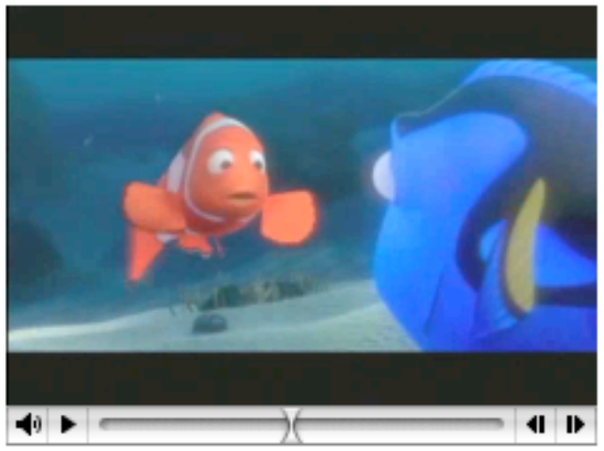
Movies | Theaters  Find Near: 94103  Showtime: Today, Jun 23

| | | |
|---|---|---|
| Daddy Day Care | Loews Cineplex Metreon | 10:30 am |
| Down with Love | AMC Theatres 1000 Van Ness | 11:30 am |
| Dumb and Dumberer: When Harry M | AMC Theatres Kabuki 8 | 12:30 pm |
| Finding Nemo | | 1:30 pm |
| Hollywood Homicide | | 2:30 pm |
| L'Auberge Espagnole | | 3:30 pm |
| Man on the Train | | 4:30 pm |

Movie Information for **Finding Nemo**

A clownfish named Marlin and his son Nemo live in the safe waters off the Great Barrier Reef. Then, Nemo is accidentally taken away and put in a Sydney dentist's aquarium. Along with the help of the kind but forgetful Dory, Marlin sets off on a dangerous journey to rescue his son.

Rated: G
Run Time: 101 min



**Loews Cineplex Metreon**

101 Fourth St
San Francisco, CA 94103

Restaurants, Shopping, Bars, Hotels, Other

Content provided by moviefone

Sherlock

Channels | Internet | Pictures | Stocks | Movies | Phone Book | eBay | Flights | Dictionary | Translation | AppleCare

Collections

- Toolbar
- Channels Menu
- Apple Channels
- Other Channels
- My Channels

| Channel | Countries | Description |
|---|---|---|
| Internet | All | Use your favorite search sites to find what you're looki... |
| Pictures | All | Find pictures of people, places, and things. |
| Stocks | United States | Track the stocks in your portfolio and get the latest ne... |
| Movies | United States | Find when and where movies are playing in your area a... |
| Phone Book | United States | Look for businesses in your area and get directions to ... |
| eBay | All | The online marketplace for buying and selling goods a... |
| Flights | All | Find out when flights are scheduled to arrive. |
| Dictionary | All | Look up the meaning of words and acronyms, and find ... |
| Translation | All | Translate words and phrases between 6 or more languages. |
| AppleCare | All | Search the AppleCare KnowledgeBase for articles about... |

Terms of Use

Sherlock

Channels | Internet | Pictures | Stocks | Movies | Phone Book | eBay | Flights | Dictionary | Translation | AppleCare

**Collections**

- Toolbar
- Channels Menu
- Apple Channels
- Other Channels
- My Channels

| Channel | Countries | Description |
|---|---|---|
| AboveCalifornia | All | Search maps for California mountains, campgrounds, r... |
| ArtFind | All | Search a gallery of New Zealand artists. |
| Billboard | All | View charts; via BILLBOARD.com. |
| Calillona | All | Shop; via Amazon.com. |
| Canada411 | All | Search Canadian 411 directory; via Sympatico and Map... |
| dotmac.info | All | Search dotmac.info. |
| Fedex Channel | All | Track FedEx shipments; via FedEx. |
| Google | All | Web, groups and news search; via Google. |
| Google | All | Search Google; via Google. |
| Google Directory | All | Search the Google Directory; via Google. |
| Gutenberg | All | Search for free online electronic books; via Project Gute... |
| iCalShare | All | Search for shared calendars. |
| Libplussa | All | Search a bibliographic database covering libraries in th... |
| Mac OS X Hints | All | Search for Mac OS X hints, view latest headlines; via Ma... |
| MapQuest | All | Find maps; via MapQuest. |
| Massinova | All | Interact with the Massinova Project. |
| Movable Type | All | Developer tool; uses XML-RPC to communicate with M... |
| RB garage | All | Search the REALbasic Garage. |
| Shop | All | Shop with Sherlock; via Amazon.com. |
| Shop for Books EU | All | Shop for books in Europe; via Amazon.co.uk, Amazon.... |
| Shopping: Books | All | Shop for books; via Amazon.com, Barnes & Noble.com,... |
| Streetwise | All | Search Streetwise Software, a store in Melbourne, Australia. |
| UK Books | All | Shop for books; via Abebooks, Amazon.co.uk, Blackwel... |
| UK Video | All | Shop for videos; via 101cd.com, Amazon.co.uk, BlackSt... |

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**Collections**

- Toolbar
- Channels Menu
- Apple Channels
- Other Channels
- My Channels

| Channel | Countries | Description |
|---|---|---|
| AboveCalifornia | All | Search maps for California mountains, campgrounds, r... |
| ArtFind | All | Search a gallery of New Zealand artists. |
| Billboard | All | View charts; via BILLBOARD.com. |
| Calillona | All | Shop; via Amazon.com. |
| Canada411 | All | Search Canadian 411 directory; via Sympatico and Map... |
| dotmac.info | All | Search dotmac.info. |
| Fedex Channel | All | Track FedEx shipments; via FedEx. |
| Google | All | Web, groups and news search; via Google. |
| Google | All | Search Google; via Google. |
| Google Directory | All | Search the Google Directory; via Google. |
| Gutenberg | All | Search for free online electronic books; via Project Gute... |
| iCalShare | All | Search for shared calendars. |
| Libplussa | All | Search a bibliographic database covering libraries in th... |
| Mac OS X Hints | All | Search for Mac OS X hints, view latest headlines; via Ma... |
| MapQuest | All | Find maps; via MapQuest. |
| Massinova | All | Interact with the Massinova Project. |
| Movable Type | All | Developer tool; uses XML-RPC to communicate with M... |
| RB garage | All | Search the REALbasic Garage. |
| Shop | All | Shop with Sherlock; via Amazon.com. |
| Shop for Books EU | All | Shop for books in Europe; via Amazon.co.uk, Amazon.... |
| Shopping: Books | All | Shop for books; via Amazon.com, Barnes & Noble.com,... |
| Streetwise | All | Search Streetwise Software, a store in Melbourne, Australia. |
| UK Books | All | Shop for books; via Abebooks, Amazon.co.uk, Blackwel... |
| UK Video | All | for videos; via 101cd.com, Amazon.co.uk, BlackSt... |

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# Safari

# Safari Goals

1. Fast
2. Small

# Performance

- Made performance the most important feature
- Started with small codebase
- Allowed no performance regressions

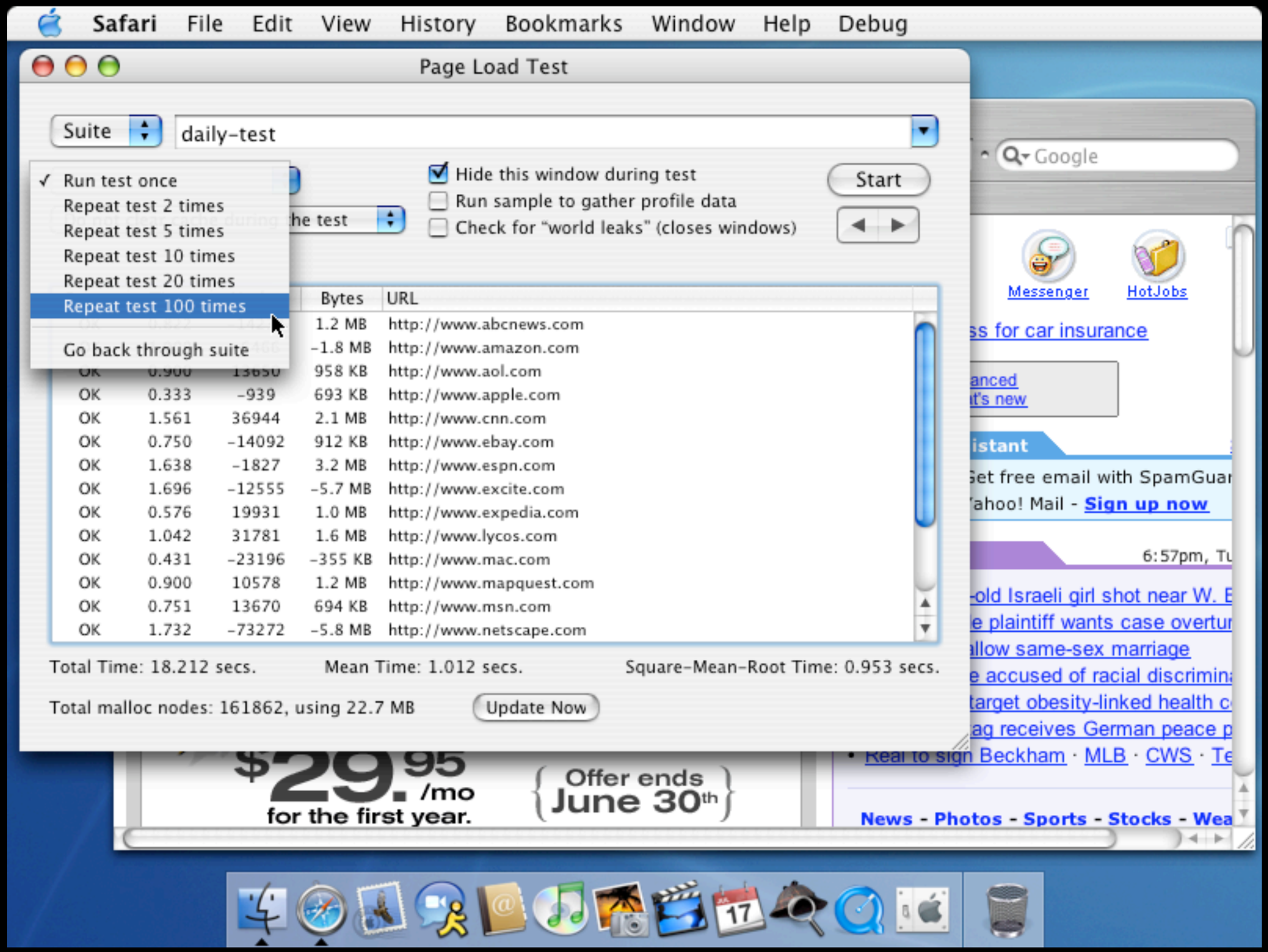
# Measure Constantly

- Hand time
- Sampled running process
- Built automated tests
- Created charts

# Use the Tools

- Sampler
- Malloc Debug
- heap
- Quartz Debug
- fs_usage
- …and many others!

# Built Performance Tests Into App



# Lessons

- Make performance a priority
- Use the right API for the job
- Measure, measure, measure
- Never regress!

# Safari Goals

1. Fast
2. Small
3. Native
4. Real world standards compliant
5. Embeddable

Apple – Safari

http://www.apple.com/safari/

Google

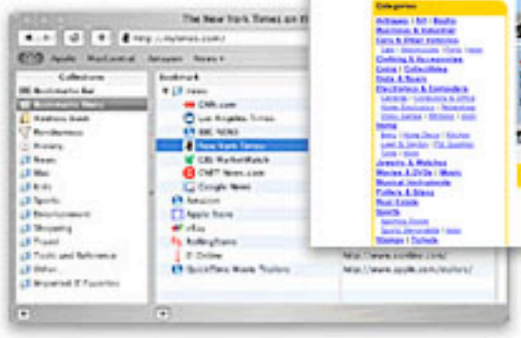
Apple .Mac Amazon eBay Yahoo! News

Store Music .Mac QuickTime Support Mac OS X

Hot News Switch Hardware Software Made4Mac Education Pro Business Developer Where to Buy

# Safari

## The turbo browser for Mac OS X.



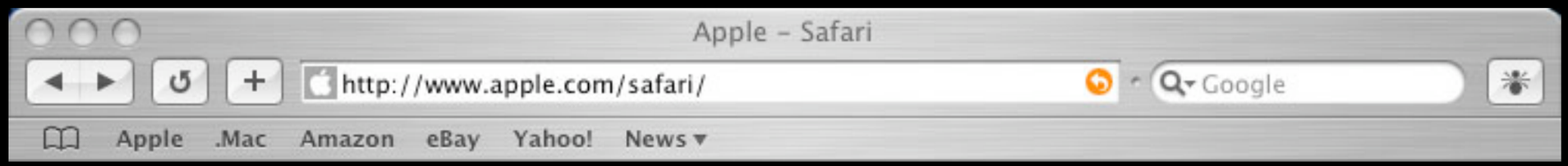
Download Safari Public Beta 2

**Safari offers you a superior Web experience with outstanding performance. Even the most complex of pages load at breakneck speed. In fact, Safari loads pages more quickly than any other Mac Web browser. But that's not all. Safari uses the advanced interface technologies underlying Mac OS X to offer you an all-new view of the Web, one that's much easier to use.**

**Learn more about Safari**

**New in Safari Beta 2**

- Tabbed browsing
- AutoFill forms & passwords
- Privacy reset
- Available in English, Japanese




Web Kit

Foundation URL API

CFNetwork

BSD Sockets

Safari

Web Kit

Foundation URL API

CFNetwork

BSD Sockets

# BSD Sockets

CFNetwork

# Foundation URL API

# What Does Foundation Now Provide?

- URL loading
- Content caching
- Authentication
- Extensible streams
- Custom protocols
- Cookies

# Foundation URL API

Web Kit

Apple

http://www.apple.com/music/

Apple Amazon eBay Yahoo

iTunes Music | Apple | Apple Store

# iTunes Music Store. new music tuesdays

The latest music from the hottest artists. Be there.

## New Releases

More

John Mellencamp

Various Artists

Woven

Boyd Tinsley

Buddy Guy

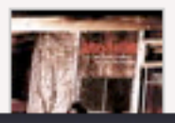
Sam Roberts

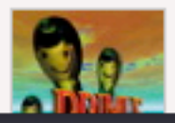
Train

Die Trying

## Just Added

More





## Audioslave Exclusive

Check out the previously unreleased track "Give," recorded during the first studio sessions for this self-titled debut album. Audioslave features former Soundgarden lead singer/guitarist Chris Cornell (vocals) and Rage Against The Machine's Tim Commerford (bass), and Tom Morello (guitar).

## Pat Metheny Exclusive

Download an extremely rare out-take "In All We See," recorded in studio sessions for Pat Metheny's latest album, *One Quiet Night*.

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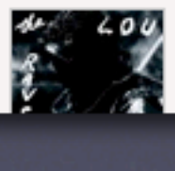

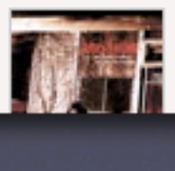

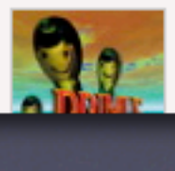

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In

Delete Reply Forward New Junk Get Mail Search

From

| From | Subject | Date Received |
|---|---|---|
| imran | lunch? | January 15, 2003 |
| Apple | New Music | January 18, 2003 |
| Bas Ording | Waiting for Guffman | January 18, 2003 |

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**New Releases** More

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Various Artists

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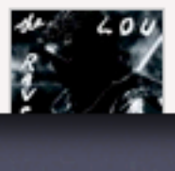
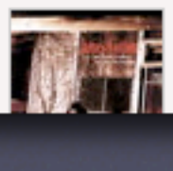
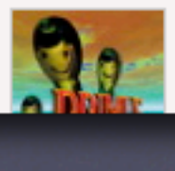
Train

Die Trying

**Just Added** More







**Audioslave Exclusive**

Check out the previously unreleased track "Give," recorded during the first studio sessions for this self-titled debut album. Audioslave features former Soundgarden lead singer/guitarist Chris Cornell (vocals) and Rage Against The Machine's Tim Commerford (bass), and Tom Morello (guitar).

**Pat Metheny Exclusive**

Download an extremely rare out-take "In All We See," recorded in studio sessions for Pat Metheny's latest album, *One Quiet Night*.

# iTunes Music Store. new music tuesdays

The latest music from the hottest artists. Be there.

## New Releases

More

John Mellencamp

Various Artists

Woven

Boyd Tinsley

Buddy Guy

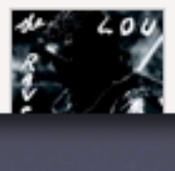
Sam Roberts

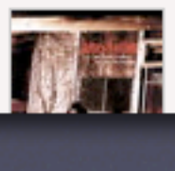
Train

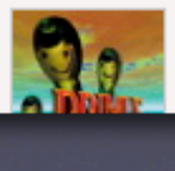
Die Trying

## Just Added

More







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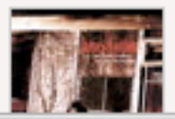

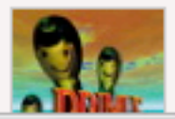

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Last Update: 6/18/03

# Standards Support

# Standards Support

- Fully buzzword compliant

| | | |
|---|---|---|
| HTML 4 | Cookies | SSL |
| XML | JavaScript | Proxies |
| CSS | Plug-ins | Unicode |
| DOM | Java | Bidi |

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| | | |
|---|---|---|
| HTML 4 | Cookies | SSL |
| XML | JavaScript | Proxies |
| CSS | Plug-ins | Unicode |
| DOM | Java | Bidi |

- Working with the W3C on new standards

Web Kit

# Web Kit

WebCore (KHTML)

JavaScriptCore (KJS)

# Web Kit

Objective C++

## WebCore (KHTML)

C++

## JavaScriptCore (KJS)

C++

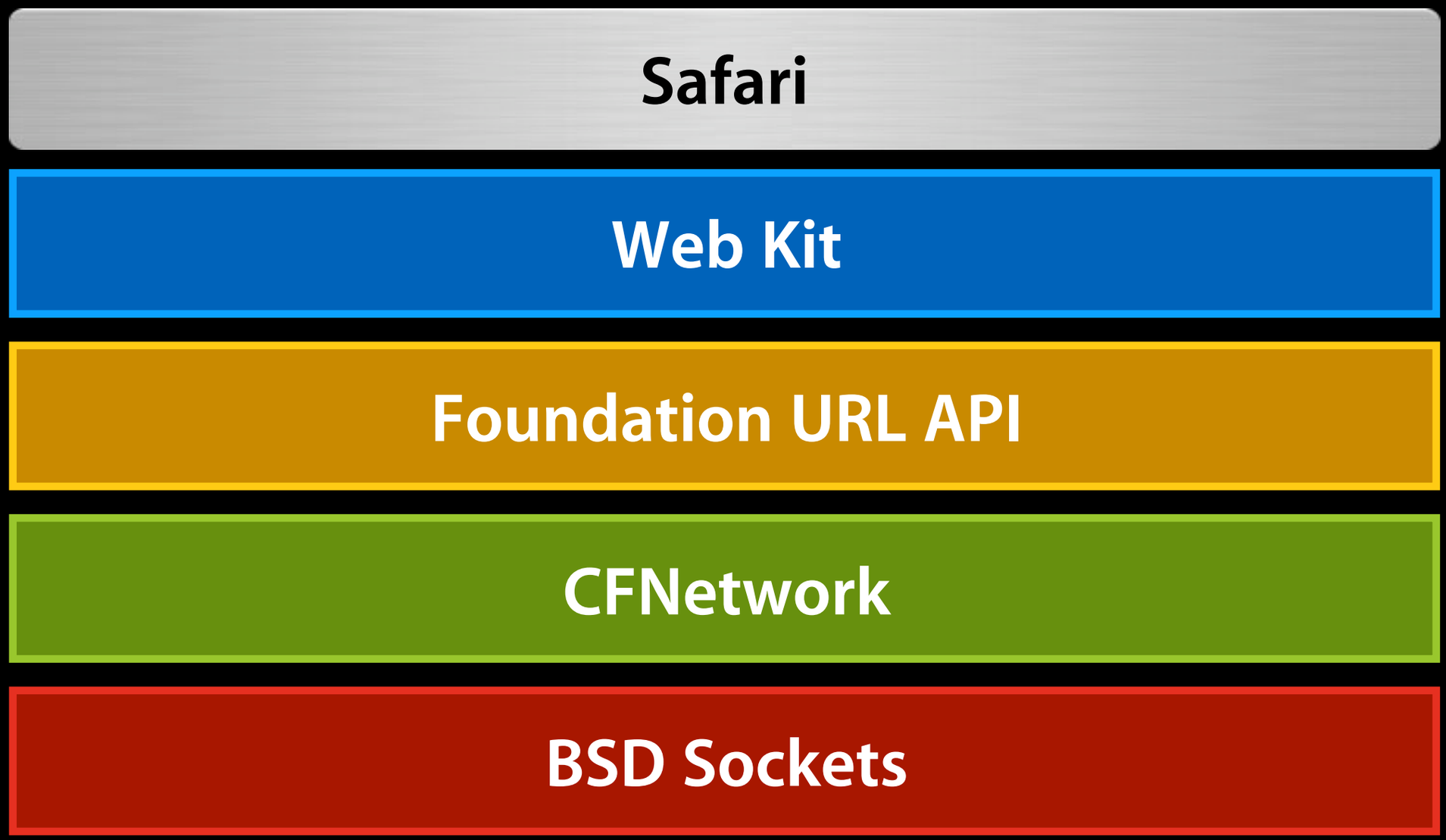
# Web Kit

WebCore (KHTML)

JavaScriptCore (KJS)

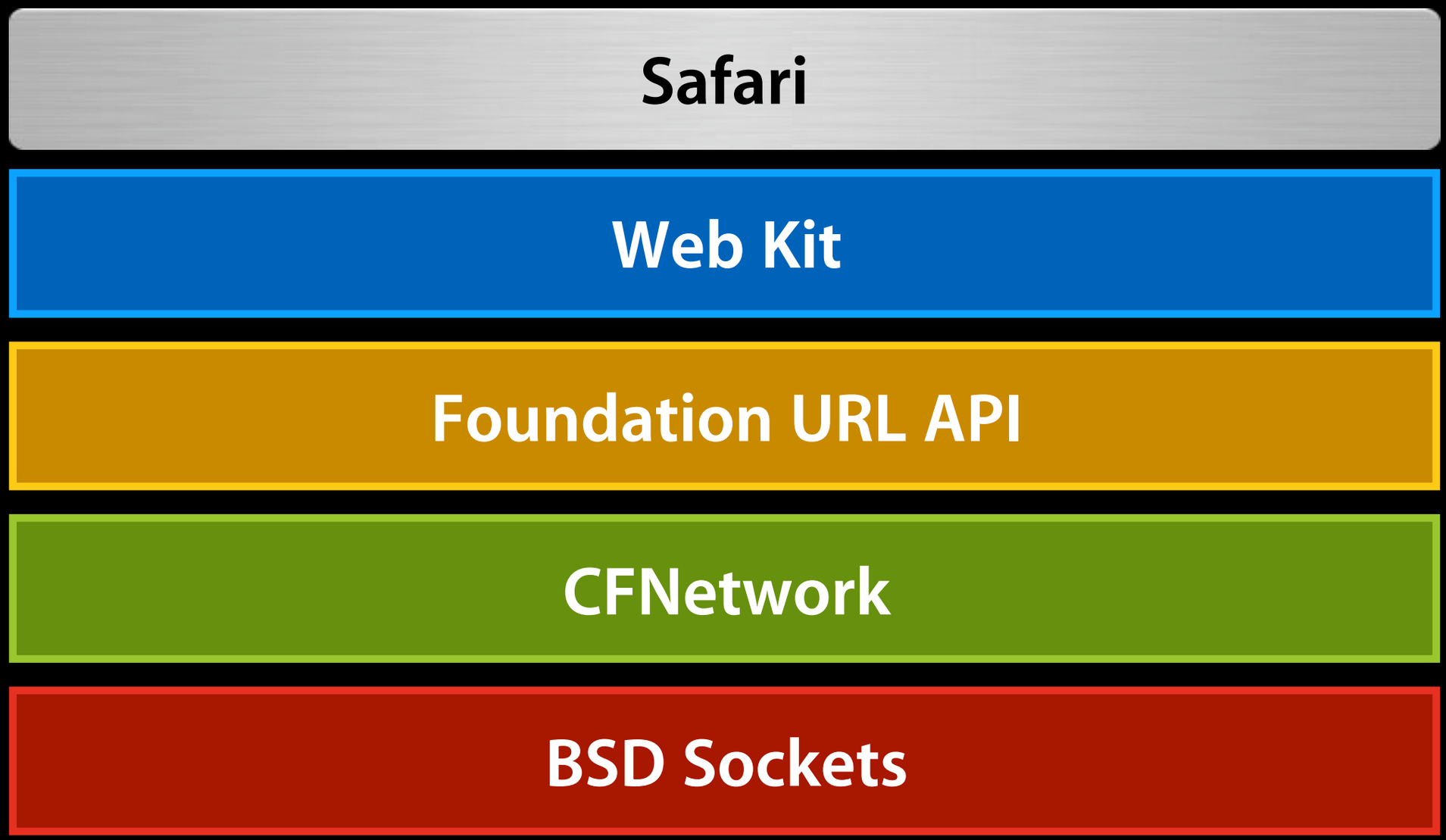
Web Kit

Web Kit


Safari
Web Kit
Foundation URL API
CFNetwork
BSD Sockets

# Richard Williamson

*Safari Engineering*


Safari
Web Kit
Foundation URL API
CFNetwork
BSD Sockets

# Available to Carbon and Cocoa

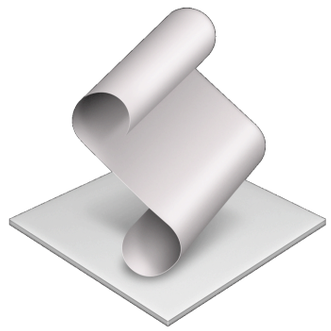
# Today

N
NE
E
SE
S
SW
W
NW

Web Kit

# Bertrand Serlet

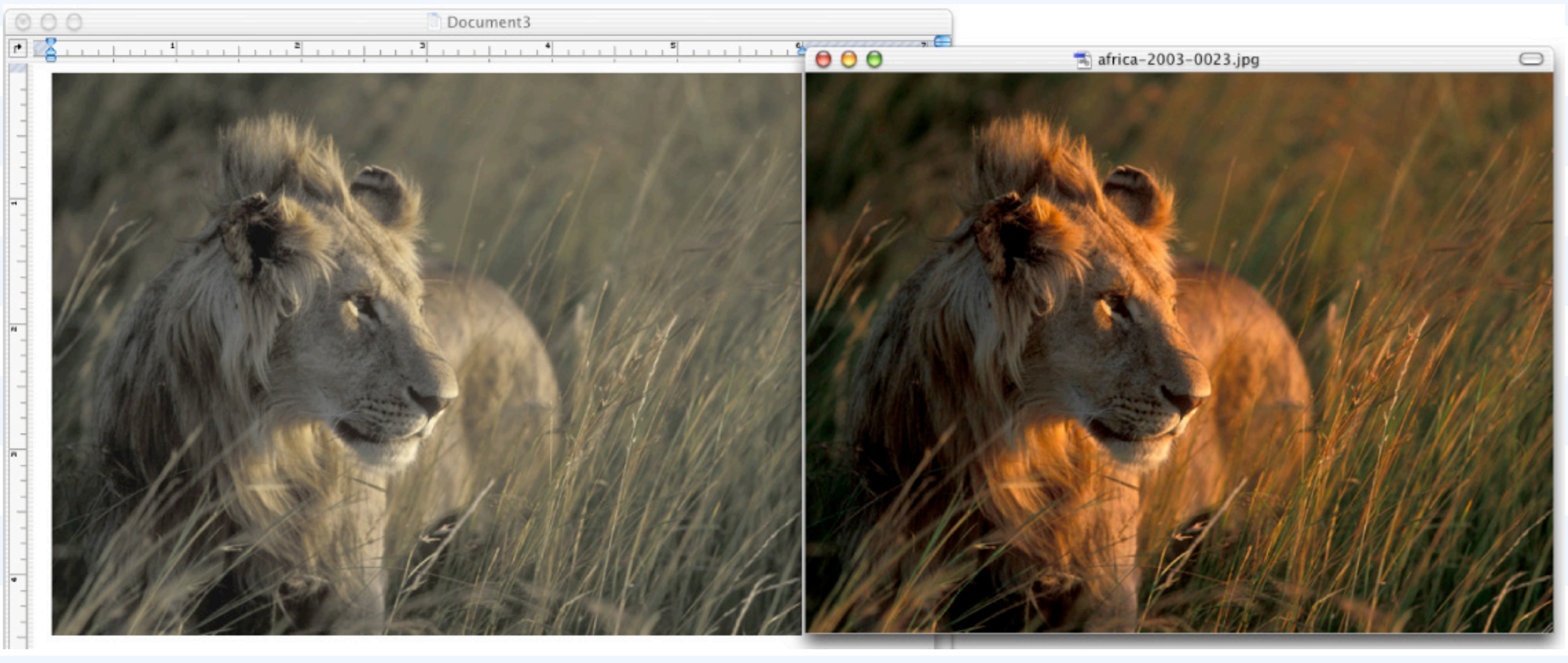
New Releases More



New Releases More

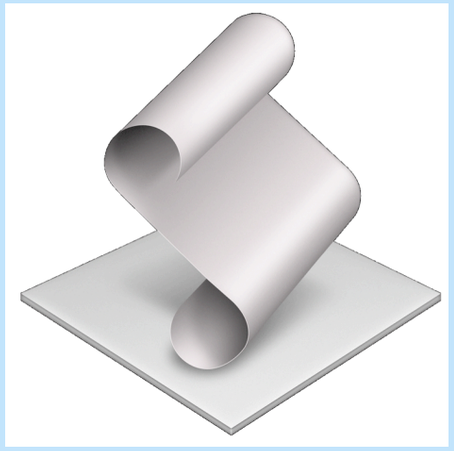
New Releases More

# ColorSync



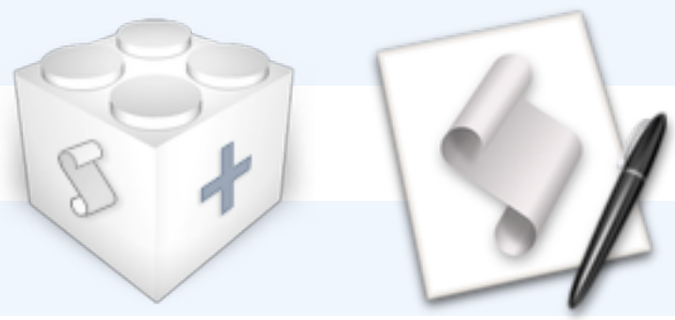
# ColorSync

- Fast
- Easier to use
- From opt-in to opt-out
- QT Graphics Importer



# AppleScript

- Automate — workflow
- Supplier
  - Make your app AppleScript-able
- Consumer
  - Leverage others: Address Book, Mail, iChat, …
- UI scripting



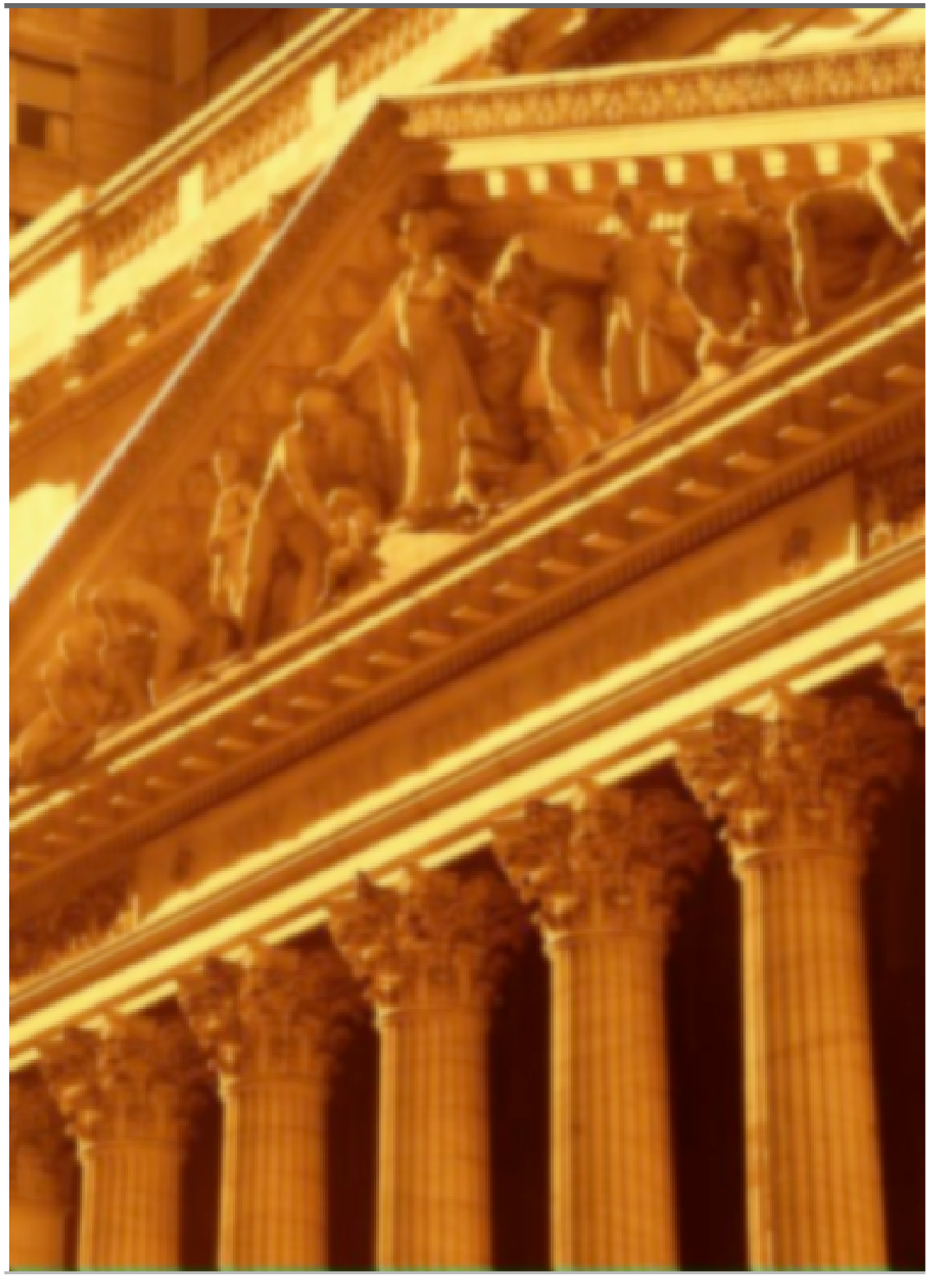
# vecLib

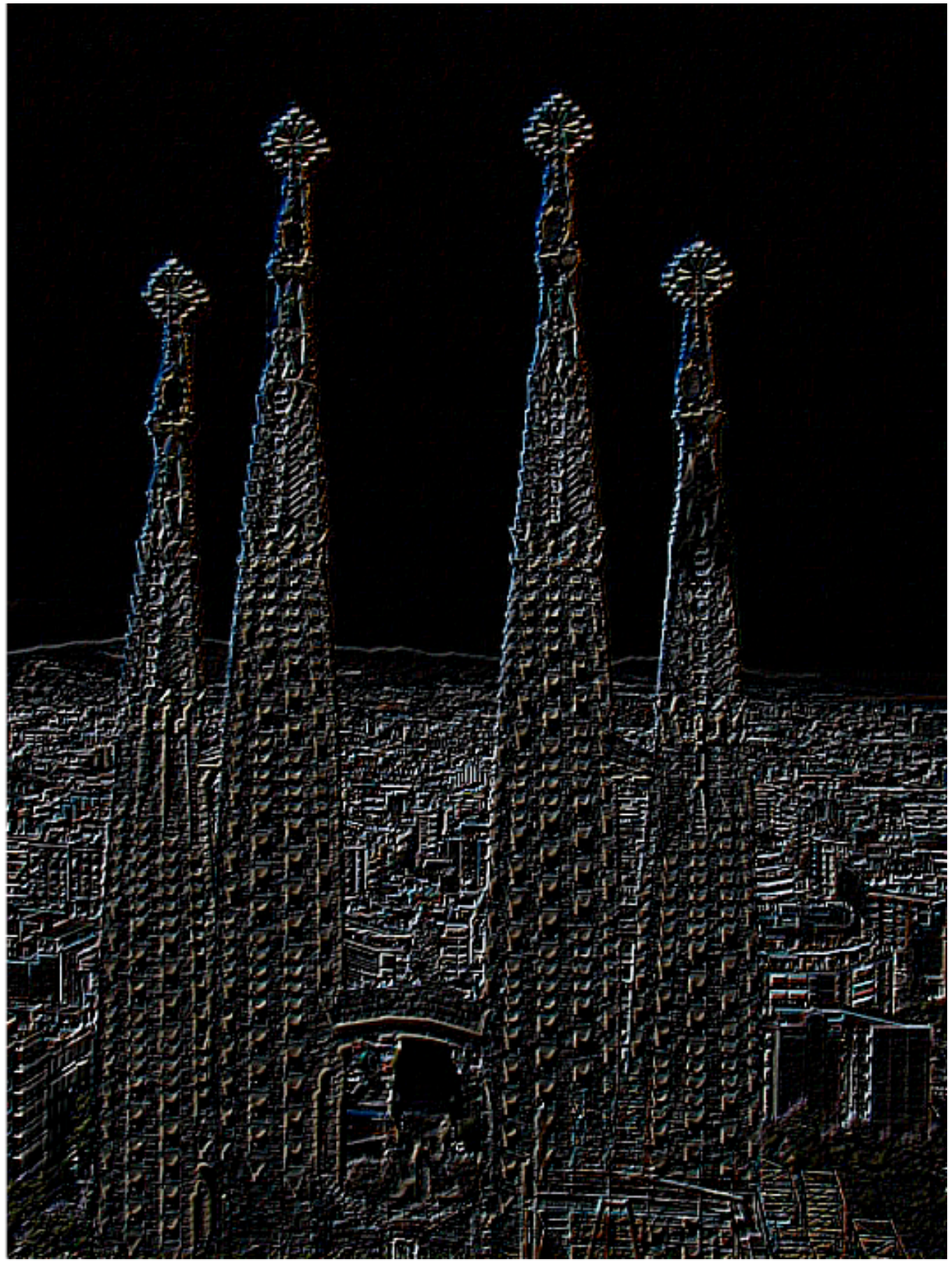
- Fast math
- Linear algebra
  - From Mathematica to junk mail
- Signal processing (e.g., audio)
- BigNum (e.g., crypto)
- **Optimized for G5**

# vecLib + vImage = Accelerate

- Convolution
  - Blur, Sharpen, Emboss, etc.
- Morphology Operations
  - Dilate, Erode, Min, Max
- Geometry
  - Rotate, Shear, Scale, Affine Transform

NEW YORK STOCK EXCHANGE





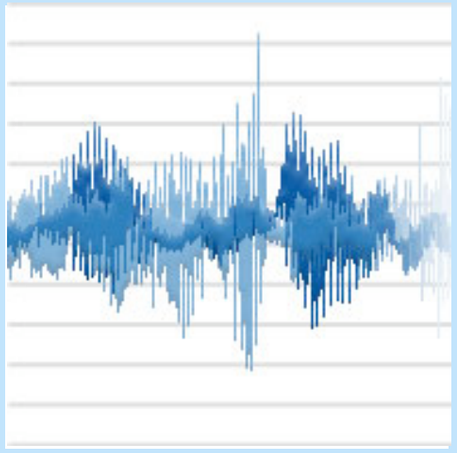
# DVD Playback

- DVD Player functionality
- Now for your app!

# QuickTime

# QuickTime

- Latest QT 6
- Focus: infrastructure
- Thread-safety
- Unicode
- CoreAudio

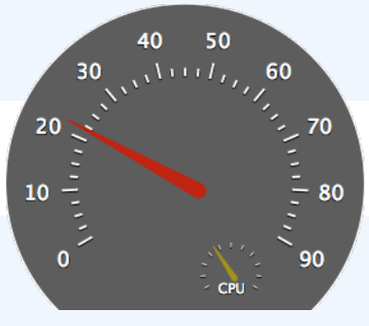


# CoreAudio

- Surround Support
- Real-time effects
  - Audio Units
- New formats
- Performance
  - E.g., AAC decode 1% CPU

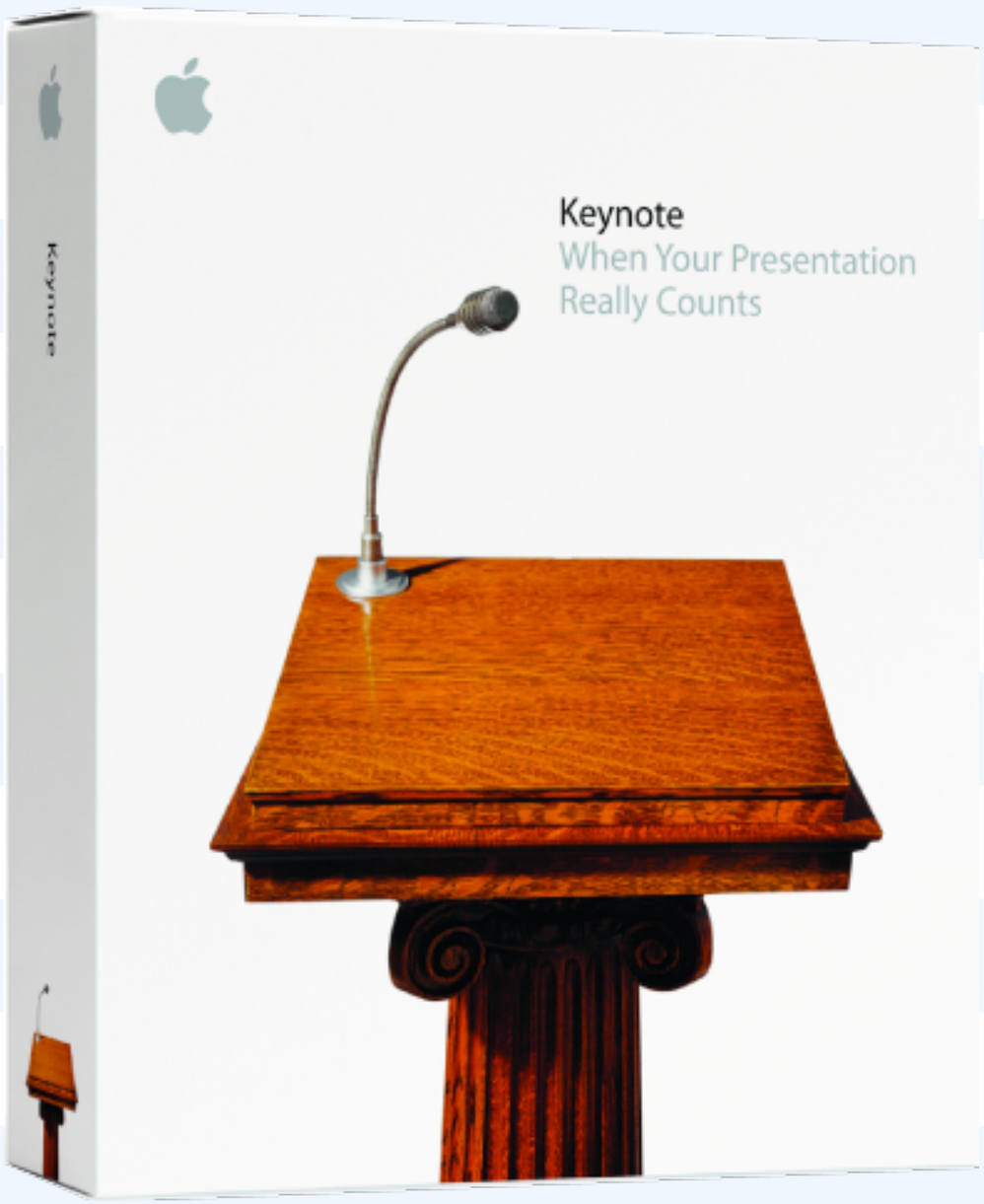
# Quartz Extreme

- Hollywood effects in your app
  - Exposé, Mail threads, iChatAV, …
- CoreGraphics additions
  - Screen scraping, shadow, etc.
  - PS to PDF converter
  - PDF APIs



# OpenGL

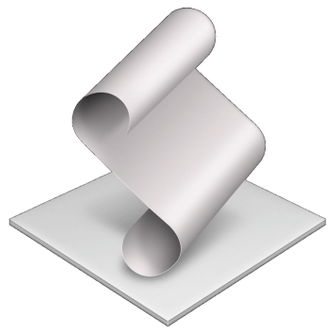
- HW Accelerated
- For games
- Beyond games



# World-Ready

- App Packaging
- Locales
  - ICU
  - CFLocale
- More languages & fonts
- **Easy to internationalize!**

New Releases More

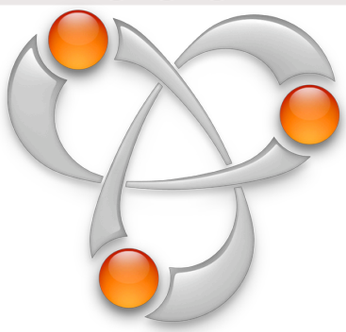


New Releases More

New Releases More

# Developer Features

New Releases More



New Releases More

New Releases More

Finder File Edit View Go Window Help

Thu 3:26 PM local

Quark

Back View Action Search home

QUARK

QuarkXPress 6

1 item, 1.38 GB available

Adobe

6 items

Adobe After Effects

Adobe Illustrator 10

Adobe ImageReady 7

Adobe InDesign 2

Adobe Photoshop 7

Adobe Reader 6

Microsoft Word

Microsoft Excel

Microsoft Entourage

Canon PhotoStitch

BBEdit

OmniOutliner

OmniGraffle

OmniWeb

RealOne Player

Macromedia

4 items

Dreamweaver MX

Fireworks MX

Flash MX

FreeHand MX

QuarkXPress

# Next Challenge?

# Strive for Excellence

# Performance

- 
- Think X, not 9
- Use Tools
- Criterion for excellence

# Add Value

- 
- Adopt and integrate
- System Frameworks
- More value, less code

Panther
Mac OS X Version 10.3